# THE EFFECT OF JIGSAW TECHNIQUE ON READING RECOUNT TEXT MASTERY AT THE ELEVENTH GRADE STUDENTS OF MADRASYAH ALIYAH SWASTA AL-ANSOR PADANGSISIMPUAN 

A THESIS

Submitted to the State Institute For Islamic Studies (LAIN) Padangsidimpuan as a partial fulfillment of the requirement for the Graduate Degree of Education (S.Pd) in English Program

Written by:
NADIA INDAḦ BUNGA LUBIS
Reg Number. 1620300112

## ENGLISH EDUCATION DEPARTMENT

TARBIYAH AND TEACHER TRAINING FACULTY STATE INSTITUTE FOR ISLAMIC STUDIES PADANGSIDIMPUAN


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## LETTER OF AGREEMENT

Term : Munaqosyah
Item : 7 (seven) examplars

Padangsidimpuan, 15 November 2021
a.n. Nadia Indah Bunga Lubis

To: Dean
Tarbiyah and Teacher Training Faculty In-

Padangsidimpuan

Assalamu 'alaikum wr.wb.

After reading, studying and giving advice for necessary revision on the thesis belongs to Nadia Indah Bunga Lubis, entitled "The Effect of Jigsaw Technique on Reading Recount Text Mastery at the Eleventh Grade Students of Madrasyah Aliyah Swasta Al-Ansor Padangsidimpuan". We assumed that the thesis has been acceptable to complete the assignments and fulfill the requirements for graduate degree of Education (S.Pd) in English Education Department, Tarbiyah and Teacher Training Faculty in IAIN Padangsidimpuan.

Therefore, we hope that the thesis will soon be examined by the Thesis examiner team of English Education Department of Tarbiyah and Teacher Training Faculty IAIN Padangsidimpuan. Thank you.

Wassalam 'alaikumwr.wb.


Dr. Fitriadi Lubis, M.Pd NIP. 196209171992031002


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The name who signed here:

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| :--- | :--- | :--- |
| Registration Number | $:$ | 1620300112 |
| Faculty/Department | $:$ | Tarbiyah and Teacher Training Faculty/ TE1-3 |
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Registration Number $: 1620300112$

| Faculty/Department | $:$ Tarbiyah and Teacher Training Faculty/TBI-3 |
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The Signed
, S5455AX663724L dadia Indah Bunga Lubis , DSSF5AX663724908 teg. Num. 1620300112

# RXAMINERS <br> SCHOI.AR MUNAQOSYAII EXAMINATION 

Name : NADIA INDAII BUNGA LUBIS
Reg. Number: 1620300112
Faculty/Department: Tarbiyah and Teacher Training Faculty/ English Education Department



Secretary

## Rypthei

Rayendriani Fahmei Lubis, M.Ag NIP. 197105102000032001

Members

## Rythlul:

Rayendriani Fahmei Lubis, M. Ag NIP. 197105102000032001


Sokhira Linda Vinde Rambe, M.Pd. NIP. 198510102019032007

| Proposed: |  |
| :--- | :--- |
| Place | Padangsidimpuan |
| Date | $22^{11}$ of Desember 2021 |
| Time | 08.30 until 12.00 |
| Resulv/Mark | $80(\mathrm{~A})$ |
| IPK | $: \mathbf{3 , 7 2}$ |
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# RELIGION MINISTRY <br> THE STATE INSTITUTE FOR ISLAMIC STUDIES <br> PADANGSIDIMPUAN <br> TARBIYAH AND TEACHER TRAINING <br> FACULTY 

JI. T. Rizal Nurdin, Km, 4,5 Sihitang. Telp. (0634) 22080 Sihitang
22733 Padangsidimpuan

## LEGALIZATION

| Thesis | : The Effect of Jigsaw Technique on Reading <br> Recount Text Mastery at the Eleventh Grade |
| :--- | :--- |
|  | Students of Madrasyah Aliyah Swasta A1-Ansor <br> Padangsidimpuan |
| Name | $:$Nadia Indah Bunga Lubis |
| Reg. Num | $: \mathbf{1 6 2 0 3 0 0 1 1 2}$ |

Faculty/Department : Tarbiyah and Teacher Training Faculty/ TBI
The thesis has been accepted as a partial fulfilment of the requirement for degree of graduate of Education (S.Pd) in English.


| Name | : Nadia Indah Bunga Lubis |  |
| :--- | :--- | :---: |
| Reg.Number | $: 1620300112$ |  |
| Faculty | $:$ Tarbiyah and Teacher Training |  |
| Department | : English Education (TBI-3) |  |
| Title of Thesis | : The Effect Of Jigsaw Technique On Reading Recount |  |
|  | Text Mastery At The Eleventh Grade Students Of |  |
|  | Madrasyah Aliyah Al-Ansor Padangsidimpuan |  |
|  | ABSTRACT |  |

This research focused on using of Jigsaw Technique on Reading Recount Text at the XI Grade Students of Madrasyah Aliyah Al-Ansor Padangsidimpuan. The problem of this research are students reading achievement is low, The students lack of vocabulary and students are bored in learnimg reading recount text. The purpose of this research is to know whether there is the Effect of Jigsaw Technique on Reading Recount Text at the XI Grade Students of Madrasyah Aliyah Al-Ansor Padangsidimpuan.

This research has three formulation of the problem, they are how is the students readimg mastery in recount text before using jigsaw technique, how is the students readimg mastery in recount text after using jigsaw technique, and is there any significant effect of using jigsaw technique. The purpose of this research are to find out the students reading mastery in recount text before using jigsaw technique, to find out the students reading mastery in recount text after using jigsaw technique, and to examine whether there is effect of jigsaw technique to students reading recount text is significant or not.

The method that is used in this research was experimental research. Two classes were as the sample. They were XI-B PUTRI as experimental class that consisted of 27 students and XI-C PUTRI as control class that consisted of 27 students. It was conducting normality and homogeneity test. The data was derived from pre-test and post-test. To analyze the data, the researcher used t-test formula.

After analyzing the data, the researcher found that the mean score of experimental class after using Jigsaw Technique was higher than control class $(63>41)$ and the mean score of experimental class before using jigsawtechnique was lower than control class $(40<44)$, and the score of $\mathrm{t}_{\text {count }}$ was bigger than $\mathrm{t}_{\text {table }}$ ( $0.173>0.156$ ), it meant that $\mathrm{H}_{\mathrm{a}}$ was accepted. It was concluded that there was significant effect of using Jigsaw Technique on Reading Recount Text at the XI Grade Students of Madrasyah Aliyah Al-Ansor Padangsidimpuan.

Key Words : Jigsaw Technique, Reading Recount Text.

| Nama | : Nadia Indah Bunga Lubis |
| :--- | :--- |
| NIM | $: 1620300112$ |
| Fakultas | : Tarbiyah dan Ilmu Keguruan |
| Jurusan | : Tadris Bahasa Inggris (TBI-3) |
| Judul Skripsi | : Pengaruh dari Teknik Jigsaw dalam Pemahaman |
|  | Membaca Recount Text pada Siswa Kelas 11 di |
|  | Madrasyah Aliyah Al-Ansor Padangsidimpuan |


#### Abstract

ABSTRAK

Penelitian ini difokuskan pada penggunaan Jigsaw Technique (JT) terhadap Reading Recount Text at the XI Grade Students of Madrasyah Aliyah Al-Ansor Padangsidimpuan. Masalah siswa dalam membaca bahasa Inggris disini adalah: Prestasi membaca siswa rendah, para siswa memiliki kosakata yang buruk dan siswa bosan belajar recount text . Tujuan dari penelitian ini adalah untuk mengetahui apakah ada pengaruh teknik $J T$ terhadap penguasaan membaca bahasa inggris dalam membaca teks recount pada siswa kelas XI Madrasyah Aliyah Al-Ansor Padangsidimpuan.

Penelitian ini memiliki tiga rumusan masalah, yaitu bagaimana kemampuan siswa dalam membaca teks recount sebelum menggunakan $J T$, bagaimana kemampuan siswa membaca teks recount setelah menggunakan $J T$, dan adakah pengaruh yang signifikan dari penggunaan JT. Tujuan dari penelitian ini adalah untuk mengetahui kemampuan siswa dalam membaca teks recount setelah menggunakan $J T$, dan untuk menguji apakah ada atau tidak ada pengaruh yang signifikan dari penggunaan $J T T$.

Metode yang digunakan dalam penelitian ini adalah penelitian eksperimental. Dua kelas sebagai sampel. kelas XI-B PUTRI sebagai kelas eksperimen yang terdiri dari 27 siswa dan kelas XI-C PUTRI sebagai kelas kontrol yang terdiri dari 27 siswa. Dalam penelitian ini, dilakukan uji normalitas dan homogenitas. Data diperoleh dari pre-test dan post-test. Untuk menganalisis data, peneliti menggunakan rumus uji-t.

Setelah menganalisis data, peneliti menemukan bahwa rata-rata nilai kelas eksperimen setelah menggunakan teknik $J T$ lebih tinggi daripada kelas kontrol. ( $63>41$ ) dan rata-rata nilai kelas eksperimen sebelum menggunakan $J T$ lebih rendah daripada kelas control $(41<44)$, dan skor $t_{\text {count }}$ lebih besar dari $t_{\text {table }}$ ( $0.173>1.156$ ). Artinya $\mathrm{H}_{\mathrm{a}}$ diterima.dapat disimpulkan bahwa terdapat pengaruh yang signifikan dari penggunaan $J T$ pada siswa kelas XI Madrasyah Aliyah AlAnsor Padangsidimpuan


Kata Kunci : Teknik Jigsaw, Membaca Teks Recount.

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This thesis is presented to the English Education Study Program of the State Institute for Islamic Studies Padangsidimpuan (IAIN Padangsidimpuan) as partial fulfillment of the requirement for degree strata 1 (S1).

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Nothing in the world is perfect, the researcher realize that there are still many short comings in this thesis. Therefore, the researcher would be very grateful for correction to improve this thesis. Comments and criticism are also
expected from all the readers of this thesis.

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Padangsidimpuan, November 2021
Researcher

NADIA INDAH BUNGA
Reg. No. 1620300112

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## CHAPTER I

## INTRODUCTION

## A. The Background of the Problem

Reading is to get general or detail information from the text. The students have to comprehend the text in order to understand the information effectively. Reading is one of four language skills should be mastered by students. Learning reading is as important as the other three skills (listening, speaking, and writing). Reading is the important subject to be taught in the school. In reading learning process, student must understand what the content of text to get information from it.

There are many types or genres of text namely, recount, narrative, procedure, report, descriptive, spoof, ect. Based on syllabus of curriculum in senior high school, one of genres that should be mastered by students in the process of learning English is recount text.

As one of the reading text types, recount text is a part of recent target in teaching English for the eleventh grade students and it always appears in National Examination. The students at the eleventh grade should be mastered recount text. Recount text is a text that telling the reader about one story, activity or the past experience of the writer. The social function of recount text is to retell past events or experiences for the purpose of informing or entertaining the reader.

The government has done some efforts to increase the quality of education, such as curriculum development, textbook selection, and teacher
quality improvement. The school also has done some efforts to increase education, such as prepare school facilities and make some rules for practicing discipline. The teacher is an important to increasing the quality of education, in addition to teach, the teacher also as a motivator for students. From the explanation, all of these aims to increase the quality of education, including to increase students ability, especially in reading recount text.

Based on the observation conducted in Madrasah Aliyah Swasta AlAnsor Padangsidimpuan, this research found that most students in Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan got difficulty in comprehending reading recount text. "They are lack of vocabularies. Some students are bored in learning reading recount text. They do not pay attention to the teachers' explanation. When they read some texts, they spend the time in translating the words." ${ }^{11}$ Those problems above made the students in Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan cannot comprehend the reading recount text maximally, so the English teaching and learning reading recount text process can not be optimum.

Travers in Anisa thesis said that achievement is the result of what in an individual has learned from some educational experience. There are several factors that can cause the reading recount text such as, difficult text, disinterest, motivation, personality, learning style, parent, and technique.,"2

[^0]There are many kinds of technique in teaching reading such as, Flipped Classroom, Design Thinking, Self Learning, Gamification and Jigsaw. Based on Maden, Jigsaw can enhance cooperative learning by making each student responsible for teaching some of the materials to the group. "Jigsaw strategy itself is as a cooperative learning method that has a specialty used for teaching various language skills for example writing, reading, listening, and speaking."3 By using this technique, students are obligated to master the text, as they are given chances to comprehend the reading very well.

Jigsaw is similar with group to group exchange with an important difference: every student tends to teach." ${ }^{4}$ Jigsaw is groups with five students are set up. Each group member is assigned some unique material to learn and then to teach to his group members.

Jigsaw technique is beneficial in teaching because learning revolves around interaction with peers, students are active participants in the learning process and thereby help to build inter-personal and interactive skills among students". ${ }^{5}$ It helps develop teamwork and cooperative learning skills within all students and the students learn all of the material on their own. The use of this technique also makes teachers find it easy to learn, enjoy working with it.

[^1]Based on the statement above, this research is interested to research in Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan. This research wants to know whether Jigsaw technique will give significant effect to students' reading recount text or not, in carry out a research entitle: "The Effect of Jigsaw Technique on Reading Recount Text Mastery at the Eleventh Grade Students of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan".

## B. Identification of the Problem

Recount text is the text tells something that has already happened, such as past experience or events in the chronological order. In the other word, recount text is a genre which is required by the curriculum to be achieves by the students Senior High School.

There are several factors that can cause the reading recount text such as, difficult text, disinterest, motivation, personality, learning style, parent, and technique. So in this research, the researcher interested in introduce Jigsaw technique to teach recount text.

## C. The Limitation of the Problem

There are several factors that can cause the reading recount text such as, difficult text, disinterest, motivation, personality, learning style, parent, and technique.

In this research did not discuss all the factor of reading achievement, this research only focuses on one of the factors, it is Jigsaw technique to teach recount text.

This research focus on using Jigsaw technique on reading recount text because some factors. First, Jigsaw technique can make student more active in process reading recount text. Second, Jigsaw technique one of the technique that can make students learn the material recount text on their own.

## D. Formulation of the Problem

Based on the limitation of the problem above, finally is formulated as follows:

1. How is the students' reading ability in recount text before learning using Jigsaw technique at the eleventh grade students of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan?
2. How is the students' reading ability in recount text after learning using Jigsaw technique at the eleventh grade students of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan?
3. Is there any significant effect of using Jigsaw technique to students' reading recount text at the eleventh grade students of Madrasah Aliyah Swasta AlAnsor Padangsidimpuan?

## E. The Purpose of the Research

From the formulation above, the purpose of this research are :

1. To find out students' recount text before learning using jigsaw technique at the eleventh grade students of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan ?
2. To find out students' recount text after learning using jigsaw technique at the eleventh grade students of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan ?
3. To examine the significant effect of using Jigsaw technique to student at Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan.

## F. Significance of The Study

Significance of the Study This study is expected to give some information for:

1. Teachers

This study as the information to know the Jigsaw technique in order to make the teaching and learning activities better and more effective in teaching reading recount text.
2. Headmaster

This study as the information and knowledge about the effect of jigsaw technique on teaching reading recount text.
3. Other Researcher

It is useful as source of the information for further related studies and this study can be used by the researcher to get new experience in the teaching learning process and gives insightful knowledge of English proficiency.

## G. Outline of the Thesis

The systematic of this research is divided into five chapter. Each chapter consist of many sub chapters are follow: Chapter one, consisted of introduction, they are: the background of the problem, the identification of the problem, the
limitation of the problem, the formulation of the problem, the purpose of the research, the significances of the research, the definitions of operational variables, and the outline of thesis.

Chapter two consists of the description of reading recount text, Jigsaw technique, the related findings, the conceptual framework, and the hypothesis.

Chapter three consists of methodology of the research which is divided into sub chapter; the place and time of the research, the research methodology, the population and sample, the research instrument, procedure of data collection, technique of analyzing data.

Chapter four consists of data description, hypothesis testing, discussion and the treats of the research.

Chapter five consists of the conclusion about the result of this research and suggestion that are given by the research

## CHAPTER II <br> LITERATURE REVIEW

## A. Theoritical Description

## 1. Reading Recount Text

## a. Definition of Reading Recount Text

There are many definitions of reading, which have been stated by many experts in this field. The definition and meaning of reading itself depend on the purpose of the reader, the text and textual content, the attitude of the readers toward the text, the reading materials, and the experience of the reader.

Reading is one of four language skills, and is an active process of seeking information in which readers relate information in the text to what they already know. In addition, "reading is the process of looking at a series of written symbols and getting meaning from them. Reading is an exercise dominated by the eyes and the brain". ${ }^{6}$ When reading, readers use their eyes to receive written symbols (letters, punctuation marks and spaces), and they use their brain to encode or convert them into words, sentences and paragraphs.

Recount text is a genre which is required by the curriculum to be achieves by the students in Junior and Senior High School. "Recount text is a text that tells about past events or experience by retelling the event in

[^2]chronological order". ${ }^{7}$ In recount text, there are three generic structures first are orientation second is record of events (done in temporal sequence) and the last one is re-orientation.

Recount text according wardiman states that, "Recount is use to tell past events, such as holiday experiences, accidents, activity report". ${ }^{8}$ "Recount text is kinds of genre that has social function to retell the events for porpuse of informing or entertaining". ${ }^{9}$ It means that different with other genres, the recount text is a kind of text that explains based on real event and real situation happen on the past.

From the statement above, it can be concluded that reading recount text is to get information from the text that telling about experience, event in the past time and uses simple past tense.

## b. Purpose of Recount Text

The purpose of recount text is to inform or entertain the reader. According to Ajizah.

The other purpose of recount text is to tell or amuse the reader or audience. Recount text is not only retelling the past activities that happened, but also to inform the reader about some information that happened. Besides, the purpose of recount text is also to entertain means that the recount that expected amuses the reader about the text that has written. ${ }^{10}$

[^3]Utami Widiyati also supported that "the social function of recount text is telling the past events for informing and entertaining". ${ }^{11}$ It means the purpose of reading recount text is either to inform or to entertain the readers.

Based on the above statement, recount text is one of the genre of text which the function is to retell the events or experience that happen in the past time to give information and to entertain the reader.

## c. Component of Reading Recount Text

In making recount text, there are component of recount text. They are social function of recount text, generic structure of recount text, and grammatical features of recount text.

## 1) Social Function of Recount Text

The social function of recount text is to tell or amuse the reader or audience. Artono Wadirman stated "that the social function of recount text is to describe what and when event happened and to tell past events for informing and entertaining". ${ }^{12}$ From definition above the social function of recount text is to tell the writer's past experience.

## 2) Generic Structure of Recount Text

Even though there are several kinds of recount text, basically they have the same characteristic in the schematic structures. "A recount

[^4]text consist of three part, those are orientation, events, and reorientation". ${ }^{13}$ Those will be described as follow:
a) Orientation

Orientation is "introducing the participants who involved in the story, the place where the story happened and when the story happened" ${ }^{14}$ It orients the readers to the events that follow which introduce character in a setting of time or place. "Since orientation is the first part of a recount text, therefore it must be interesting in order to attract readers' attention". ${ }^{15}$ The orientation part include information about who, what, when, and where.
b) Events

Event is "the main important activities or events that occurred in that story of text. The function of events is to give a sequences of events. It presents the events chronologically". ${ }^{16}$ The event is presented in the order they really happened.
c) Reorientation

Reorientation is optional. It returns the reader to the point of departure and sometimes the writer also give comments on the whole sequences of events describe. "Some recounts have an

[^5]evaluative comments or a conclusion which may constitute the writer's comment on events describe previously, but this is just optional". ${ }^{17}$ The conclusion is written in the last paragraph, and because this part is optional, some recounts may not have this conclusion paragraph "It contains closure that can be author's comment or personal attitude that happens in the vacation" ${ }^{18}$ The recount ends with a reorientation which states personal comments about the events.

Based on the above explanations, recount text tells the reader what happened in the past. It begins with an orientation which tells the reader who was involved, what happened, where this event took place and when it happened. Then, the events are described some short of order time. The last, reorientation which is at the end of text contains about summarizes or conclusion the event.

## 3) Grammatical Feature

In making recount text, the writer must know the language features of recount text well. There are some language features of recount text. They are.
a) The use of nouns and pronouns. (e.g: Nadia, we her).
b) The use of action verb. (e.g: went, run, played).
c) The use of past tense. (e.g: we went for a trip to zoo).
d) The use of time conjunction. (e.g: that, first, next, then).
e) The use of adver of phrase. (e.g: in my house, two days ago, slowly).

[^6]f) Use adjective. (e.g: beautiful, slow). ${ }^{19}$

Based on above statement, there are some language features that must be understood before writing recount text. Such as, using noun and pronouns, these point is defenetly important, because as a performer. Then, using action verb, conjunction, adverb of phrase, and the important one is using simple past tense, this point is the most dominant used, because recount text is telling about past event.

## d. Process of Reading Recount Text

In process of reading recount text, there is reading activity. In reading activity there are pre-reading, while-reading and post-reading.

## 1) Reading Activity

Reading activities that are meant to increase communicative competence should be success and build students confidence in their reading ability. According to Fauziati in Annisa Nugrahaini's journal, "reading activities are divided into three" ${ }^{20}$, there are:
a) Pre - reading

Pre-reading activities are used to prepare the students for reading. According to Annisa Nugrahaini's journal state that.

The activities during pre-reading may serve as preparation in several ways. Pre-reading activities give students the background knowledge necessary for comprehension of the text or

[^7]activate the writing knowledge that he students process to comprehend the process. Pre-reading are most important at lower level of language proficiency and at earlier stages of reading instruction. ${ }^{21}$

As the students become more proficient at using reading strategies, we will be able to reduce the amount of guided prereading and allow the students to do the activities themselves.
b) While- reading

According to Annisa Nugrahaini's journal state that.
While- reading is used to monitor comprehension, to evaluate ideas gleaned from each paragraph, and to begin to organize ideas within the structure of the text as students are reading. In while-reading activities, the students check their comprehension as they read. The purpose for reading determines the appropriate type and level of comprehension. ${ }^{22}$

For example, when reading for specific information, the students need to ask themselves about the information that want to know when he/she read the text.
c) Post- reading

Post-reading is "used to reconstruct important ideas, organize those ideas, and evaluate" ${ }^{23}$ Those ideas after reading a chapter or article.

Based on explanation above, this research concluded there are some procedures in jigsaw technique. First, pre-reading is a

[^8]preparation. Second, while-reading get the idea from the text. The last, post-reading is to evaluate.

## e. The Example of Recount Text

In the text book of senior high school, there are some example of recount text. So, the following is one of example of recount text on text book.

## FIFA Word Cup

## Orientation :

FIFA Word Cup is the biggest football competition in the word. It is usually participated by the countries with excellent football records. They have to pass the qualification rounds and become the representations of their regions.

## Event 1 :

The first World Cup was held in Uruguay in 1930, and thirteen countries were participated at the time, the host won the competition after they beat Argentina in the final round. Both in 1934 and 1938, World Cup was won by Italy. During World War II, this competition was postponed due the safety of the players but then it continued in 1950 in Brazil where thirteen countries were participated.

## Event 2 :

From 60s to the 90s, the competition were held in either Europe or America. South Korea and Japan, who became the hosts for FIFA World Cup 2002, were the first countries in Asia which held this competition. The next FIFA World Cup was held in Germany, and Italy won this event.

## Reorientation :

In 2010, South Africa hosted this event and marked the country as the first African country that held this event and showed the world that they could handle such a huge event. ${ }^{24}$

[^9]There are some exercise from the text above:
Answer the following questions based on the text above !

1. What is the text about?
2. Where is the first FIFA World Cup held ?
3. Who was the first winner of the first FIFA World Cup?
4. What countries that became the hosts for the FIFA World Cup 2002?
5. Has Brazil ever been selected to host the FIFA World Cup?
6. When was the first time FIFA World Cup held outside Europe or America?
7. How many countries that were participated in FIFA World Cup 1950 ?
8. Where was the FIFA World Cup 2010 held ? ${ }^{25}$

## 2. Jigsaw Technique

## a. Definition of Jigsaw Technique

Jigsaw is a "cooperative learning strategy that the students will be studying with a small group of their classmates" ${ }^{26}$. Cooperative learning is unique models of teaching, because it uses a different task and reward structure to promote students learning. The task structure requires students to work together in small groups.

Jigsaw is "similar with group to group exchange with an important difference: every student tends to teach., ${ }^{27}$ Jigsaw is groups with five students are set up. "Each group member is assigned some unique material to learn and then to teach to his group members. To help in the learning, students across the class working on the same sub-section

[^10]get together to decide what is the important and how to teach it". ${ }^{28}$ After practice in these "expert" groups the original groups' reform and students teach each other.

Jigsaw, "one of the techniques which is used in the implementation of cooperative learning, brings the cooperation to the forefront by providing support to students' working together and removing competition in the classroom". ${ }^{29}$ Jigsaw is a "commonly used structure that emphasized resource interdependence primarily within a group but across groups as well. Jigsaw technique is the reconstituted work group in the classroom, is interdependence., ${ }^{30}$ This depends upon one another to achieve tasks that operate cross-role teams.

Jigsaw technique is "beneficial in teaching because learning revolves around interaction with peers, students are active participants in the learning process and thereby help to build inter-personal and interactive skills among students. ${ }^{31}$ The use of this technique also makes teachers find it easy to learn, enjoy working with it, it can be used in conjunction with other teaching strategies and it can be effective even if it is used for just an hour per day.

[^11]In the Jigsaw technique, "as the only way for a student to learn the other parts of the content that are not under his/her responsibility is to carefully listen to his/her teammates". ${ }^{32}$ These practices encourage learners to support and care about the work of others.

Based on the definition above, this research concluded Jigsaw technique is a technique making student dependent on each other. In this technique, each student is responsible for learning a part of material.

## b. Purpose of Jigsaw Technique

The purposes of jigsaw are "to develop teamwork, to help the students develop a depth of knowledge which is not possible if students to try and learn all of the material on their own". ${ }^{33}$ It means that by using jigsaw technique students gets a deep knowledge through group of learning material.

## c. The Procedure of Jigsaw Technique

Every technique has procedure in use, include jigsaw technique. There are some procedure according to Aronson, the procedures of Jigsaw technique in teaching reading comprehension are as follows :

1) Dividing students into five or six people called "home group". The groups should be divergent in terms of gender, ethnicity, ability and skill.
2) Appointing one student from each group as a leader.
3) Dividing the material into five or six segments.
4) Assigning each student to learn a segment of the material.

[^12]5) Giving students time to read over their segment at least twice and become familiar with it.
6) Forming temporary "expert group" by having one student from each home group join other students assigned to the same segment. At this step, teacher must give time to these "expert groups" to discuss the main points of their segment and to rehearse the presentations they will make to their home group.
7) Bringing the students back into their home group
8) Asking each student to share the segment to the group.
9) Circulating from group to group, observing the process. If there is group having problem, for example; a member is dominating or disruptive, make an appropriate intervention.
10) Giving a quiz on the material to find out students' achievement. ${ }^{34}$

Jigsaw technique has two groups; "home group and expert group.
The study shows that Jigsaw as the learning strategy stimulated students to be more active in looking for the information that were needed for their own group benefit. ${ }^{35}$ Besides, students also became active in discussing and sharing their part in the expert group with other students from different group.

The home group became students' social interaction room. In this group, they participated in every aspect such as making a decision about the choosing of the chief of the group, the choosing of which part that every member will focus on, and also how to support their group. It assured that every student was involved in the learning process. This group also facilitated them to share their knowledge and conclusion from the discussion in the expert group without feeling ashamed about their English ability. It is because they had known each other. ${ }^{36}$

[^13]Based on the explanation above, this research concluded Jigsaw technique that the communication became two ways communication between the teacher and the students.

## d. Advantages of Jigsaw Technique

A goal of a jigsaw classroom is "to decrease competition and increase cooperation and so competitive students can create difficulties ${ }^{37}$. Carolyn Kessler mentioned some advantages of applying jigsaw technique in the classroom:

1) Provide opportunities for students to work in racially and culturally mixed groupings.
2) Provide an excellent learning environment for the acquisition of language through relevant content.
3) Support the communicative approach in language teaching.
4) Develop students' skills of analysis, comparison, evaluation, and synthesis of information. ${ }^{38}$

The advantages stated by Carolyn Kessler are mostly from the students, because as students have main role in jigsaw technique process, students should get involved well in the process. Therefore, the ambience of learning process that provides the opportunities for the students to work in groups and share ideas will likely to be effective. Besides, jigsaw technique can also enable the students to develop their skills. The advantages are mostly to improve students' reading ability in the term of comprehension.

[^14]
## e. Disadvantages of Jigsaw Technique

In jigsaw technique also have disadvantages. In this reaserch there are some disadvantages accordning Shlomo Sharan, they are:

1) For some students, it may create an over sense of pressure to perform when they return to their home group.
2) Students may wrong about their second language communication skill, learning difficulties, or social status, blocking their ability to contribute in their home group. ${ }^{39}$

Based on the explanation above, jigsaw technique give students responsible for learning and teaching the other about what they have learned. In other side, it makes students difficult to communicate in second language and may it blocking students' ability to give a contribution for their home group.

## f. Teaching Reading Recount Text by Using Jigsaw Technique

The following is steps in teaching recount text using jigsaw technique.

1) Pre- Teaching
a) Teacher open the class
b) The topic are chosen by the teacher or students
c) The technique is introduced to the students, such as how the technique works.
2) While- Teaching
a) Grouping the students
[^15]Teacher divided students into five or six people called "home group". The groups should be divergent in terms of gender, ethnicity, ability and skill.
b) Appointing one student from each group as a leader.

Teacher appointed a student from each group as a leader. A group with a leader. The teacher choose a leader from the gender or ability.
c) Dividing the material.

Teacher divided the material into five or six segments.
d) Assigning each student to learn a segment of the material.

Teacher distributes the pieces of the text. Each receives the pieces from the text consisting of different information but they are all related constructing a story or a topic.
e) Giving students time to read.

Teacher gives the students time to read over their segment at least twice and become familiar with it and study their text before they leave their "home team".
f) Working in Expert group.

Forming temporary "expert group" by having one student from each home group join other students assigned to the same segment. At this step, teacher must give time to these "expert groups" to discuss the main points of their segment and to rehearse the presentations they will make to their home group.
g) Working in the jigsaw group

Bringing the students back into their home group. The students return to their home teams, which is called jigsaw group
h) Asking each student to share the segment to the group.

The teacher asks the members of each jigsaw group to teach each other what have learned. The time to teach each other is limited
i) Circulating from group to group, observing the process. If there is group having problem, for example; a member is dominating or disruptive, make an appropriate intervention.
j) Giving a quiz on the material to find out students' achievement. The teacher distributes the quizzes and allows time for everyone to finish. It can be group or an individual work.
3) Post- Teaching
a) The teacher and students look at back the information from the book and recall the ideas before that they do thinking changed and make sure they are documenting their own changes in thought.

Based on the explanation above, there are some steps in teaching recount text by using jigsaw technique. First, the teacher should divided students into group of four. Each group received a different materials and it called by home team. After that, each student in home team leaves the group to work in new expert
group to learn and discussed the materials. The last, students so back to home team each member of group the material and after that the teacher gives evaluation.

## Table. 1

Teaching Reading Recount Text by Using Jigsaw Technique


| 1. Teacher divides the material into 5 or 6 segments | 3. Dividing the material. <br> Teacher divided the material into five or six segments | 1. Students listen to the teacher |
| :---: | :---: | :---: |
| 1. Teacher gives the piece of the text | 4. Assigning each student to learn a segment of the material | 1. Students learn the segment |
| 1. Teacher gives the students time to read | 5. Giving students time to read | 1. Students read the text |
| 1. Teacher asks students to leave their group and join to expert group | 6. Working in Expert group | 1. Students leave their group <br> 2. Students join Expert group <br> 3. Students sit in Expert group |
| 1. Teacher asks students back to their group | 7. Working in the jigsaw group | 1. Students leave the Expert group <br> 2. Students back to the home group |
| 1. Teacher asks student to share the segment to their group | 8. Asking each student to share the segment to the group | 1. Students listen to the teacher <br> 2. Students share the segment to the group |
| 1. Teacher asks the students' question | 9. Circulating from group to group, observing the process. If there is | 1. Students answer the question |


|  | 1. Teacher gives the quiz to the student | group <br> having problem, for example; a member is dominating or disruptive, make an appropriate intervention <br> 10. Giving a quiz on the material to find out students' achievement | 1. Students do the quiz <br> 2. Students collect the quiz to the teacher |
| :---: | :---: | :---: | :---: |
| Post-Teaching | 1. The teacher asks the students looking back the information from the book |  | 1. Students listen to the teacher <br> 2. Students look back the book |

## g. Teachers' Technique

When retelling or writing story, a story writer usually uses past tense, because the story usually talks about actions or situations in the past, began and ended at a particular time in the past. Simple past indicates that an activity or a situation began and ended at a particular time in the past. Recount text retells events or experience in the past. Its purpose is either to inform or to entertain the audience.

## Pattern :

(+) Subject + Verb $2+$ Object + Adverb
(-) Subject + Did + Not + Infinitive/Verb $1+$ Object + Adverb
(?) Did + Subject + Infinitive/Verb 1 + Object + Adverb

## Generic Structure of a Recount Text:

Orientation : Orientation introduces the participants, places, and times.
Events : Events describe series or event that happened in the past.
Reorientation : Reorientation is optional. It states personal comments of the writer to the story.

## B. The Review of Related Findings

This research is not the first research that had been done. There are some related findings to this research. The first is Asteti Hilda based on the result of the analysis, it can be said that using jigsaw technique is effective. It can be seen from the students' score who are taught using jigsaw technique is better than the students' who are not taught by using jigsaw technique. The result showed that in significance degree of $5 \%$, the value of t -test $(\mathrm{to})>\mathrm{t}$-table $(\mathrm{tt})(2.17>2.002)$. It could be said that t -observe was higher it han t - table. So, the null hypothesis (Ho) was rejected. ${ }^{40}$ It means Jigsaw technique can improve students' reading skill.

The second is Endang Larasati the result showed calculation of $t$-test, the difference of averages post test's score of controlled class and experiment class and the range of the result of post test and pre-test of controlled and experiment

[^16]class. The result calculation of t -test show to is bigger than tt . ${ }^{41}$ It means Jigsaw technique can improve students' reading skill.

The third is Neneng Hoerunnisa and Didi Suherdi according to the result of the research, teaching reading by using jigsaw technique could improve the students' reading comprehension. The research question number one about the effectiveness of jigsaw technique was shown from statistic computation The result showed teaching reading by using Jigsaw technique can improve the students' reading skill. ${ }^{42}$ It means Jigsaw technique can improve students' reading skill.

The fourth is Nurhasanah the result showed that the students' mean score increased from the pre-test, first test in circle 1 and second test in cycle 2 and the hypothesis could be accepted. ${ }^{43}$ It means Jigsaw technique can improve students' reading skill.

The fifth is Nurul Azijah the result showed mean gained score from both classed that showed the experiment class got higher result than the controlled class. It is also proved by the value of t -test (2.17) is higher than t -table (2.002) at the significance level 5\%, it means that the Null Hypothesis (H0) is rejected and the Alternative Hypothesis (Ha) is accepted. ${ }^{44}$ It means Jigsaw technique can improve students' reading skill.

[^17]The sixth is Teika Amiratrini the result showed the implementation of Jigsaw strategy can improve students' reading comprehension achievement of recount text. It is proven, since there is an increase of students' reading score after being taught through jigsaw strategy at the first grade students of SMAN 1 Abung Selatan. ${ }^{45}$ It means Jigsaw technique can improve students' reading skill.

The seventh is Budi Darmawan the result showed there is significant effect of using Jigsaw strategy towards students' reading ability in narrative text at MTs Perguruan Nurul Islam Sungai Segajah of Rokan Hilir regency. It can be seen from the result of T-test calculating is 4.47. It is bigger than standard on the critic table of T-test that is 2.68 in $1 \%$ or 2.01 in $5 \%$, it can be read $2.01<4.47>2.68$. Regarding the result above, Ha is accepted and Ho is rejected. ${ }^{46}$ It means Jigsaw Technique cam improve students' reading skill.

Due to the previous research, the research concluded that Jigsaw technique has an effect on students' learning. Therefore, this research wants to try in another location with different problem and situation.

## C. Conceptual Framework

Many student of Madrasyah Aliyah Al-Ansor Padangsidimpuan got difficulty in comprehending reading recount and have lack of vocabulary. Then, the students do not understand the generic structure and language features of

[^18]recount text. The teacher seldom to use various technique in teaching reading especially recount text.

Jigsaw technique is an effective technique for students' reading skill. So by applying this technique, the researcher illustrates the conceptual framework as follow.

In order to get the data in this research, three procedures will take in this research, they are pre-test, treatment, and post-test.

The pre-test will give a test to experimental class and control class before treatment to know the meat score of the experimental class and control class. After the pre-test, this research will give treatment with using jigsaw technique for experimental class and conventional method for control class. The post-test will give a test to know mean score both of class whether the jigsaw technique has a significant effect on the students' recount text.

The students got difficulty in comprehending reading recount and have lack of vocabulary. Then, the students do not understand the generic structure and language features of recount text. The teacher seldom to use various technique in teaching reading especially recount text.


Figure 1

## Conceptual Framework

## D. Hypothesis

The hypothesis of this research:

1. There is significant effect of using Jigsaw technique on reading recount text at the eleventh grade students of Madrasyah Aliyah Al-Ansor Padangsidimpuan $\left(\mathrm{H}_{\mathrm{a}}\right)$.
2. There is no significant effect using Jigsaw technique on reading recount text at the eleventh grade students of Madrasyah Aliyah Al-Ansor Padangsidimpuan $\left(\mathrm{H}_{0}\right)$.

# CHAPTER III <br> RESEARCH METHODOLOGY 

## A. Place and Time Research

The location of this research is in Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan. It is located in Jl. H. Tengku Rizal Nurdin, Km. 8 No. 3 Desa Manunggang Julu, Kecamatan Padangsidimpuan Tenggara, Kota Padangsidimpuan. This research start in April 2021 until August 2021.

## B. Research Design

The design of this research is quantitative research in experimental research. This research use two classes, as an experimental class and a control class. The experimental class is the class that taught with jigsaw technique as a treatment and control class is the class that taught with a conventional technique. The researcher uses true experimental design with Pretest-Posttest Control Group Design. It means there are two classes would be chosen, then give pre-test to know the basic condition of the two classes. Next, the both of class gave post-test. The result of the test compared to know the different effect of treatment to experimental class. The research design for pretest-posttest control group design by using one treatment can be seen below:

Table. 2

## Pretest-Posttest Control Group Design

| A | $\mathrm{O}_{1}$ | X | $\mathrm{O}_{2}$ |
| :---: | :---: | :---: | :---: |
| B | $\mathrm{O}_{1}$ | - | $\mathrm{O}_{2}$ |

Where:
A: Symbol for experimental class
B: Symbol for control class
X: Symbol for treatment ${ }^{47}$

In this model, both of classes will give pre-test $\left(\mathrm{O}_{1}\right)$. Then, in experimental class will give a treatment $(\mathrm{X})$ and control class will not give a treatment. After giving a treatment, both of classes will give post-test $\left(\mathrm{O}_{2}\right)$.

## C. Population and Sample

## 1. Population

The population as the data sources of this research are all the students at Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan that consist of 3 classes with 84 students. The teacher of Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan said that, the students are not grouped by IQ or level of intelligence means there is no placement test for them. ${ }^{48}$ So that it can be conclude that the population is a homogeneous population. It can be seen from the table below.

[^19]Table. 3

## The Population of the XI Grade Students

| No | Class | Students |
| :---: | :---: | :---: |
| 1 | XI-A Putri | 30 |
| 2 | XI-B Putri | 27 |
| 3 | XI-C Putri | 27 |
| Total Population |  | 84 |

## 2. Sample

In this research, This research use random sampling to take the sample the research. This research chosen two classes as a sample. Class XI-B consist of 27 students and XI-C consist of 27 students as a respondents and this class is chosen. So the total sample of this research are 54 students. They are experimental class and control class. So that one class is as experimental class and the other is as control class.

Table. 4
The Sample of Students Pesantren An-Nur Padangsidimpuan

| No | Class | Number |
| :---: | :---: | :---: |
| 1 | Experimental Class XI-B Putri | 27 |
| 2 | Control Class XI-C Putri | 27 |
|  | Total | 54 |

## D. The Definition of the Operational Variables

To avoid misunderstanding, this research is consisted of two variables, the key term of this research are defined as follow:

1. Jigsaw Technique (Variable X )

Jigsaw technique is a method of organizing classroom activity that make students dependent on each other to succeed.
2. Reading Recount Text (Variable Y )

Recount text is to get information from a text that retells events or someone experiences that happened in the past by written form.

## E. Instrument of Collecting Data

The test of the instrument used in collecting the data. The test is used to find out if there is an effect of using jigsaw technique in teaching reading on recount text. The test is given in the beginning and in the end of the treatments. In which 106 items multiple choice for pre-test and post-test. The test are given both to the experimental and controlled classes' students. This research gives the reading test to students either for post-test and pre-test. The experimental class by using Jigsaw technique and control class using conventional technique. To find out the score of the students' answer this research give 1 score for multiple choice. Thus, the maximum score of test is 100.

Table 6
Indicator of Reading Recount Text (Pre-Test)

| Indicator | items | No. Items | Total score |
| :--- | :--- | :--- | :--- |
| Identifying | 27 | $1,6,11,16,21,22,23$, | 27 |
| orientation |  | $31,37,42,45,52,53$, |  |
|  |  | $57,62,63,65,69,77,82,86$, |  |
|  |  | $90,93,95,97$ |  |
| Identifying | 52 | $2,3,4,5,6,7,8,12,13$, | 46 |
| event |  | $14,17,24,26,27,34$, |  |
|  |  | $3536,39,40,43,50,51$, |  |

$\left.\begin{array}{|l|l|l|l|}\hline & & \begin{array}{l}54,55,58,59,60,64,67, \\ \\ \end{array} & \\ & & 88,70,73,74,75,76,79, & \\ & 80,81,83,87,88,89, \\ 91,92,94,96,98,99,100\end{array}\right)$

Table 6
Indicator of Reading Recount Text (Post-Test)

| Indicator | items | No. Items | Total score |
| :--- | :--- | :--- | :--- |
| Identifying | 27 | $1,6,11,16,21,22,23$, | 27 |
| orientation |  | $31,37,42,45,52,53$, |  |
|  |  | $57,62,63,65,69,77,82,86$, |  |
|  |  | $90,93,95,97$ |  |
| Identifying | 52 | $2,3,4,5,6,7,8,12,13$, | 46 |
| event |  | $14,17,24,26,27,34$, |  |
|  |  | $3536,39,40,43,50,51$, |  |
|  |  | $54,55,58,59,60,64,67$, |  |
|  |  | $68,70,73,74,75,76,79$, |  |
|  |  | $90,81,83,87,88,89$, |  |
| Identifying <br> reorientation | 10 | $10,15,94,96,98,99,100$ |  |
| Identifying <br> grammar | 6 | $72,76,84,48,49$, | 10 |
| Identifying <br> vocabulary | 11 | $25,32,33,38,41,106$ | 6 |
| Total | 100 | $18,19,28,29,30,44,56,61$, | 11 |

## F. The Procedures of Research

In completing the data, the researcher continue to the next step sample. The function of data collecting is to determine the result of the research in collecting, the researcher used some steps. They are pre-test, treatment, and post-test.

1. Pre-test

The pre-test will conduct to find out the homogeneity of the sample. The function of the pre-test is to find the mean score of Jigsaw Technique and teacher method in teaching before the researcher give the treatment. In this case, the writer hopes that the whole students' reading skill is same or if there is a difference is hopefully not significant.
2. Treatment

The experimental class and the control class give same material, which is consist of communication aspect that taught by the teacher in different ways. The experimental class give treatment, it taught by using collaborative writing strategy and control class taught by conventional strategy.
2. Post-test

After giving the treatment, both of the classes again give the final test in order to measure their writing skill. This test is used for investigating the difference of writing skill between the experimental class and control class.

## G. Technique of Data Analysis

## a. Requirement Test

## 1) Normality test

The function of normality test is to know whether the data of research is normal or not. The research is normal or not. The researcher uses normality test with using Chi-Quadrate formula, as follow: ${ }^{49}$

$$
X^{2}=\sum \frac{f o-f n}{f h}
$$

Where:
$X^{2}=$ Chi-Quadrate
$\mathrm{F}_{\mathrm{o}}=$ Frequency is gotten from the sample or result of observation (questioner)
$\mathrm{F}_{\mathrm{h}}=$ Frequency is gotten from the sample as image from frequency is hoped from the population. ${ }^{50}$

To calculate the result of Chi-Quadrate, it is used significant level $5 \%$ (0.05) and degree of freedom as big as total of frequency is lessened 3 ( $d \mathrm{k}=\mathrm{k}-3$ ). if result $\mathrm{x}^{2}$ count $<\mathrm{x}^{2}$ table. So, it concluded that data is distributed normal.
2) Homogeneity test

Homogeneity test is used to know whether control class and experimental class have the same variant or not. If both of classes are same, it is can be called homogenous. Homogeneity is the similarity of variance of the group will be compared. So, the function of homogeneity test is to find out whether the data homogeny or not. It use Harley test, as follow:

[^20]$$
\mathrm{F}=\frac{\text { Thebiggestvariant }}{\text { Thesmallestvariant }}
$$

The hypothesis is accepted if $\mathrm{F}_{\text {count }} \leq \mathrm{F}$ table The hypothesis is rejected if $\mathrm{F}_{\text {count }} \geq \mathrm{F}_{\text {tab;e }}{ }^{51}$

Experimental research design is being done through experimental class and control class. After experimental process, two of classes are tested with using technique of data analysis.

The technique of the data analysis that will be used in this research is Independent T-test formula:

$$
T t=\frac{X_{1}-X_{2}}{\sqrt{\left(\frac{\left(n_{1}-1\right) s_{1}^{2}+\left(n_{2}-1\right) s_{2}^{2}}{n_{1}+n_{2}-2}\right)\left(\frac{1}{n_{1}}+\frac{1}{n_{2}}\right)}}
$$

Where:
$\mathrm{t} \quad:$ the value which the statistical significant
$\mathrm{X}_{1} \quad$ : the average score of the experimental class
$\mathrm{X}_{2} \quad$ : the average score of the control class
$\mathrm{s}_{1}{ }^{2} \quad:$ deviation standard of the experimental class
$\mathrm{s}_{2}{ }^{2}$ : deviation standard of the control class
$\mathrm{n}_{1} \quad$ : number of experimental class
$\mathrm{n}_{2} \quad$ : number of control class $2^{52}$

If $t_{\text {test }}$ is higher than $t_{\text {table }}$, the researcher can conclude that ha is acceptanded ho is rejected. It means that there is significant effect of using Jigsaw technique toward the students' reading skill. If $\mathrm{t}_{\text {-test }}$ is lower than $\mathrm{t}_{\text {table }}$, the writer can conclude that ha is rejected and no is accepted. It means that there is no significant effect without using Jigsaw technique toward the reading skill in recount text at the eleventh grade students of Madrasyah Aliyah Al-Ansor Padangsidimpuan.

[^21]
## THE RESULT OF THE RESEARCH

This chapter presents research result. In this case, it discusse the effect of using Jigsaw Technique on students' reading recount text. The researcher has calculate the data using pre test and post test. Applying quantitative research, the research use the formulation of $t$-test to test the hypothesis. Next, the researcher will describe the result base on the data that has been researched as follow:

## A. The Description of Data

## 1. The Description of Data before Using Jigsaw Technique

a. Score of Pre-Test Experimental Class

In pre-test of experimental class, the researcher calculated the result that had been gotten by the students in answering the multiple choice. The score of pre-test experimental class can be seen in the following table:

Table 7
The Score of Experimental Class in Pre-test

| Descriptive | Statistics |
| :---: | :---: |
| Total | 1079 |
| Highest score | 50 |
| Lowest score | 25 |
| Mean | 40 |
| Median | 41 |
| Modus | 42 |
| Range | 25 |
| Interval | 5 |
| Standard deviation | 6.2 |
| Variants | 39.5 |

Based on the above table the total score of experimental class in pretest was 1079 , mean was 40 , standard deviation was 6.2 , variants was 39.5 ,
median was 41 , range was 25 , modus was 42 , interval was 5 . The researcher got the highest score was 50 and the lowest score was 25 . It can be seen on appendix 17.

Then, the computed of the frequency distribution of the students' score of experiment class could be applied into the table frequency distribution as follow:

Table 8
Frequency Distribution of Students' Score

| No | Interval | Mid <br> Point | Frequency | Percentages |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $25-29$ | 27 | 2 | $7.40 \%$ |
| 2 | $30-34$ | 32 | 3 | $11.11 \%$ |
| 3 | $35-39$ | 37 | 5 | $18.51 \%$ |
| 4 | $40-44$ | 42 | 10 | $37.03 \%$ |
| 5 | $45-49$ | 47 | 6 | $22.22 \%$ |
| 6 | $50-54$ | 52 | 1 | $3.70 \%$ |
| $I=5$ |  |  |  | 27 |

From the above table, the students' score in class interval between 25-29 was 2 students ( $7.40 \%$ ), class interval between $30-34$ was 3 students (11.11\%), class interval between $35-39$ was 5 students ( $18.51 \%$ ), class interval between $40-44$ was 10 students ( $37.03 \%$ ), class interval between 45-49 was 6 students ( $22.22 \%$ ), and the last class interval between $50-54$ was 1 students (3.70\%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


Figure 2: Description Data of Students' Reading Recount Text in Experimental Class (Pre-test)

From the histogram above shows that, the data was normal.

## b. Score of Pre Test Control Class

In pre-test of control class, the researcher calculated the result that had been gotten by the students in answering the question (test). The score of pre-test control class can be seen in the following table:

Table 9
The Score of Control Class in Pre-test

| Descriptive | Statistics |
| :---: | :---: |
| Total | 1105 |
| Highest score | 54 |
| Lowest score | 24 |
| Mean | 41 |
| Median | 43 |


| Modus | 43 |
| :---: | :---: |
| Range | 30 |
| Interval | 6 |
| Standard deviation | 8.6 |
| Variants | 75.5 |

Based on the above table the total score of control class in pre-test was 1105 , mean was 41 , standard deviation was 8.6 , variants was 75.5 , median was 43 , range was 30 , modus was 43 , interval was 6 . The researcher got the highest score was 54 and the lowest score was 24 . It can be seen on appendix 17.

Then, the computed of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 10
Frequency Distribution of Students' Score

| No | Interval | Mid- <br> Point | Frequency | Percentages |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $24-29$ | 26 | 3 | $11.11 \%$ |
| 2 | $30-35$ | 32 | 4 | $14,81 \%$ |
| 3 | $36-41$ | 38 | 4 | $14,81 \%$ |
| 4 | $42-47$ | 42 | 9 | $33,33 \%$ |
| 5 | $48-53$ | 48 | 6 | $22,22 \%$ |
| 6 | $54-59$ | 52 | 1 | $3.70 \%$ |
| $I=6$ |  |  |  |  |
|  | $100 \%$ |  |  |  |

From the above table, the students' score in class interval between 24-49 was 3 students ( $11.11 \%$ ), class interval between $30-35$ was 4 students ( $14.81 \%$ ), class interval between $30-35$ was 4 students ( $14.81 \%$ ), class interval between $42-49$ was 9 students (33.33\%), class interval between $48-53$ was 6 students ( $22.22 \%$ ), and the last class interval between $54-59$ was 1 students ( $3.70 \%$ ).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


Figure 2: Description Data of Students' Reading Recount Text in Control Class (Pre-test)

From the histogram above shows that, the data was normal.

## 2. The Description of Data After Using Jigsaw Technique

## a. Score of Post Test Experimental Class

In post-test of experimental class, the researcher calculated the result that had been gotten by the students in answering the question (test) after the researcher did the treatment by using Jigsaw Technique. The score of post-test experimental class can be seen in the following table:

Table 11
The Score of Experimental Class in Post-test

| Descriptive | Statistics |
| :---: | :---: |
| Total | 1701 |
| Highest score | 80 |
| Lowest score | 35 |
| Mean | 63 |
| Median | 62 |
| Modus | 62 |
| Range | 45 |
| Interval | 9 |
| Standard deviation | 10.7 |
| Variants | 115.03 |

Based on the above table the total score of experiment class in posttest was 1701 , mean was 63 standard deviation was 10.7 , variants was 115.03, median was 62 , range was 45 , modus was 62 , interval was 9 . The researcher got the highest score was 80 and the lowest score was 35 . It can be seen on appendix 19 .

Then, the computed of the frequency distribution of the students' score of experiment class can be applied into table frequency distribution as follow:

## Table 12

Frequency Distribution of Students' Score

| No | Interval | Mid- <br> Point | Frequency | Percentages |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $35-43$ | 39 | 1 | $3.70 \%$ |
| 2 | $44-52$ | 48 | 3 | $11.11 \%$ |
| 3 | $53-61$ | 57 | 4 | $24.81 \%$ |
| 4 | $62-70$ | 66 | 11 | $40.74 \%$ |
| 5 | $71-79$ | 75 | 7 | $25.92 \%$ |
| 6 | $80-88$ | 84 | 1 | $3.70 \%$ |
| $i=9$ |  |  |  | 27 |

From the above table, the students' score in class interval between $35-43$ was 1 students ( $3.70 \%$ ), class interval between $44-52$ was 3 students ( $11.11 \%$ ), class interval between $53-61$ was 4 students ( $24.81 \%$ ), class interval between $62-70$ was 11 students ( $40.74 \%$ ), class interval between 71-79 was 7 students ( $25.92 \%$ ), and the last class interval between $80-88$ was 1 students (3.70\%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


Figure 2: Description Data of Students' Reading Recount Text in Experimental Class (Post-test)

From the histogram above shows that, the data was normal.

## b. Score of Post-Test Control Class

In post-test of control class, the researcher calculated the result that had been gotten by the students in answering the question (test). The score of post-test control class can be seen in the following table:

Table 13
The Score of Control Class in Post-test

| Descriptive | Statistics |
| :---: | :---: |
| Total | 1201 |
| Highest score | 58 |
| Lowest score | 28 |
| Mean | 44 |
| Median | 46 |
| Modus | 46 |
| Range | 30 |
| Interval | 6 |


| Standard deviation | 8,2 |
| :---: | :---: |
| Variants | 69,8 |

Based on the above table the total score of control class in post-test was 1201 , mean was 44 , standard deviation was 8.2 , variants was 69.8 , median was 46 , range was 30 , modus was 46 , interval was 6 . The researcher got the highest score was 58 and the lowest score was 28 It can be seen on appendix 19 .

Then, the computed of the frequency distribution of the students' score of control class can be applied into table frequency distribution as follow:

Table 14
Frequency Distribution of Students' Score

| No | Interval | Mid- <br> Point | Frequency | Percentages |
| :---: | :---: | :---: | :---: | :---: |
| 1 | $28-33$ | 30 | 3 | $11.11 \%$ |
| 2 | $34-39$ | 36 | 4 | $14.81 \%$ |
| 3 | $40-45$ | 42 | 5 | $18.51 \%$ |
| 4 | $46-51$ | 48 | 8 | $29.62 \%$ |
| 5 | $52-57$ | 54 | 7 | $25.92 \%$ |
| 6 | $58-63$ | 60 | 1 | $3.70 \%$ |
| $i=7$ |  |  |  | 27 |

From the table above, the students' score in class interval between 28-33 was 3 students ( $11.11 \%$ ), class interval between $34-39$ was 4 students (14.81\%), class interval between $40-45$ was 5 students ( $18.51 \%$ ), class interval between $46-51$ was 8 students ( $29.62 \%$ ), class interval between 52-

57 was 7 students ( $25.92 \%$ ), and the last class interval between $58-63$ was 1 students (3.70\%).

In order to get description of the data clearly and completely, the researcher presents them in histogram on the following figure:


Figure 2: Description Data of Students' Reading Recount Text in Control Class (Post-test)

From the histogram above shows that, the data was normal.

## B. Testing of Hypothesis

## 1. Hypothesis Test

After calculated the data of post-test, researcher has found that post-test result of experimental and control class is normal and homogeneous. Based on
the result, to analyze the hypothesis the researcher used parametric test by using T-test. Hypothesis alternative $\left(\mathrm{H}_{\mathrm{a}}\right)$ of the research was "there was the significant effect of Tourism Brochures on writing ability in descriptive text.

## Table 18

## Result of T-test from Both Averages

| Pre-test |  | Post-test |  |
| :---: | :---: | :---: | :---: |
| $\mathbf{t}_{\text {count }}$ | $\mathbf{t}_{\text {table }}$ | $\mathbf{t}_{\text {count }}$ | $\mathbf{t}_{\text {table }}$ |
| $\mathbf{0 . 1 7 3}$ | $\mathbf{0 . 1 5 6}$ | $\mathbf{0 . 1 5 6}$ | $\mathbf{0 . 1 7 3}$ |

Based on table above, researcher found that $\mathrm{t}_{\text {count }} 0.156$ while $\mathrm{t}_{\text {table }} 0.173$ in post-test with opportunity $(1-\mathrm{a})=1-5 \%=95 \%$ and $\mathrm{dk}=\mathrm{n} 1+\mathrm{n} 2-2=27+$ $27-2=52$. Cause $\mathrm{t}_{\text {count }}>\mathrm{t}_{\text {table }}(0.173>0.156)$, it means that hypothesis $\mathrm{H}_{\mathrm{a}}$ was accepted and $\mathrm{H}_{0}$ was rejected. So, there was significant effect of Tourism Brochures on writing ability in descriptive text.

## C. Discussion

Based on the data analysis, the researcher discussed the result of this research on the effect of using Jigsaw Technique on students reading recount text, where the result mean score experimental class was higher than control class. The researcher has been count the result in data analysis where the mean score in pre-test experimental class was 40 and control class was 41 , in post-test mean score in experimental class was 80 and control class was 44 . It means there is a significant effect by using Jigsaw Technique on students reading recount text of Madrasah Aliyah Swasta Al-Ansor.

Based on the related finding, the researcher discussed result of this research and compared with finding. It also discussed with theory that has been stated by
researcher. In this case, the theory which has been discussed by the researcher was from Maden stated that Jigsaw can enhance cooperative learning by making each student responsible for teaching some of the materials to the group. It has a specialty used for teaching various language skills for example reading. ${ }^{53}$ Based on the related findings, Thesis by Hilda, she concluded that there is the effect of Jigsaw Technique on reading recount text with $\mathrm{t}_{\text {count }}$ was higher than $\mathrm{t}_{\text {table }} \mathrm{t}$-test (to) $>\mathrm{t}$-table (tt) $(2.17>2.002) .{ }^{54}$ So, it was same with the result of this thesis that implication of Jigsaw Technique was suitable to teach students' reading recount text and give a positive effect on reading recount text.

Next, Azijah research. Using Jigsaw Technique can improve the students' reading skill in recount text. In the pre-test, the mean score of the experimental and the control group were 57.17 and 62.17 , and the mean score of post-test of experimental and the control group, those were 75.67 and $70.33 .{ }^{55}$ So, it was same with the result of this thesis that implication of Jigsaw Technique was suitable to teach students' reading recount text and give a positive effect on reading recount text.

Then, Budi Darmawan, concluded that the students had achievement in reading comprehension Jigsaw Technique. The students' mean score of the first cycle was 57.15 . It was very low. The mean score of second cycle was 67.7. It

[^22]means that Jigsaw Technique can improve students' reading skill. ${ }^{56}$ So, jigsaw technique can be applied to decrease in activity in learning process.

The proofs show that Jigsaw Technique in teaching students' reading recount text. So, Jigsaw Technique has given the effect to the research that has been done by researcher or the other researcher who mentioned in related findings.

## D. Threats of the Research

There were some aspect that could threat for this research as follow:

1. The weather at the time was so hot, so that the students feel lazy.
2. There were some of students that were noisy while teaching and learning process. So it can disturb the concentration of the others.
[^23]
## CHAPTER V

## CONCLUSION AND SUGGESTION

## A. Conclusion

Based on the result of the research, the conclusions of this research are:

1. Before using Jigsaw Technique, the mean score of pre-test for experimental class was 40 and the mean score of pre-test for control class was 41 .
2. After using Jigsaw Technique, the mean score of experimental class was higher than before using Jigsaw Technique. The mean score of post-test for the experimental class was 63 and the mean score of post-test for control class taught by conventional strategy was 44 .
3. The researcher found the research result of $t$-test where $t_{0}$ was higher than $t_{t}$ was 0.173 and $t_{t}$ was $0.156(0.173>0.156)$. It means that $H_{a}$ was accepted, so there was a significant effect of Jigsaw Technique on reading recount text in Madrasyah Aliyah Swasta Al-Ansor Padangsidimpuan.

## B. Suggestion

After finishing the research, the researcher got many information in English teaching learning. Therefore, from that experience, the researcher show some things need to be proven. It makes the researcher give some suggestion, as follow:

1. From the researcher result it is as the information for the headmaster to motivate the English teacher to teach as well as possible by maximizing the using Jigsaw Technique in teaching, because this technique can achieve the students reading especially in reading recount text.
2. From the research result it is also as the information to the English teacher to use Jigsaw Technique as a reference in teaching reading recount text to make learning process more active.
3. The researcher suggests to another researchers to use this technique in solving another problems and find another factors that face by students in learning English process.

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## CURRICULUM VITAE


A. Identity
Name : Nadia Indah Bunga
Lubis
Reg. Num 16203
00112
Place/Birth : Padangsidimpuan, June
$13^{\text {th }} 1999$ Sex $:$ Female
Religion : Moeslim
Address : Jalan Kapten Koimah, Padangsidimpuan
B. Parents
Father's Name : Nasrun Lubis
Mother's Name : Mas Diah
C. Educational Background

1. SD Negeri 2 Padangsidimpuan 2004-2010
2. SMP Negeri 3 Padangsidimpuan 2010-2013
3. SMA Negeri 2 Padangsidimpuan 2013-2016
4. IAIN Padangsidimpuan 2016-2021

## RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

| Sekolah | : Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan |
| :--- | :--- |
| Mata Pelajaran | $:$ Bahasa Inggris |
| Kelas/ Semester | $:$ X / II (dua) |
| Materi Pokok | $:$ Recount Text |
| Alokasi Waktu | $: 2 \times 40$ menit |

A. Kompetensi Inti

1. Menghayati dan mengamalkan ajaran agama yang dianutnya
2. Menghayati dan mengamalkan perilaku jujur, disiplin, tanggungjawab, peduli (gotong royong, kerjasama, toleran, damai), santun, responsif dan proaktif dan menunjukkan sikap sebagai bagian dari solusi atas berbagai permasalahan dalam berinteraksi secara efektif dengan lingkungan sosial dan alam serta dalam menempatkan diri sebagai cerminan bangsa dalam pergaulan dunia
3. Memahami,menerapkan, menganalisis pengetahuan faktual, konseptual, prosedural berdasarkan rasa ingintahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik sesuai dengan bakat dan minatnya untuk memecahkan masalah.
4. Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, dan mampu menggunakan metoda sesuai kaidah keilmuan.
B. Kompetensi Dasar dan Indikator
1.1 Mensyukuri kesempatan dapat mempelajari bahas Inggris sebagai bahasa pengantar komunikasi internasional yang diwujudkan dalam semangat belajar.
1.2 Menunjukkan perilaku tanggungjawab, peduli kerja sama dan cinta damai dalam melaksanakan komunikasi fungsional.
1.3 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan pada teks recount sederhana tentang pengalaman/kejadian/peristiwa, sesuai dengan konteks penggunaannya.
1.4 Menangkap makna dalam teks recount lisan dan tulis sederhana.
1.5 Menyusun teks recount lisan dan tulis sederhana tentang pengalaman/ kegiatan/kejadian/peristiwa, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai dengan konteks.
C. Indikator
5. Siswa dapat bercerita mengenai pengalaman atau kejadian yang telah dialami dalam berkomunikasi.
6. Siswa dapat membuat dialog yang di dalamnya terdapat pengalaman atau kejadian yang telah dialami.
D. Tujuan Pembelajaran

Setelah mempelajari materi ini, siswa diharapkan mampu:

1. Menunjukkan kesungguhan belajar bahasa Inggris terkait recount
2. Menunjukkan perilaku peduli, percaya diri dan tunggungjawab dalam melaksanakan komunikasi terkait recount
3. Mengidentifikasi fugsi social, struktur teks dan unsure kebahasaan dari recountberbentuk teks dalam dialog.
4. Merespon makna terkait recount berbentuk teks dalam dialog.
E. Materi Pembelajaran

Tema: Recount

1. Definition: Recount text is a text which retells events or experiences in the past. Its purpose is either to inform or to entertain the audience. There is no complication among the participants and that differentiates from narratives
2. Generic Structure

- Orientation: Introduce the participants, place and time.
- Events: Describing series of event that happened in the past.
- Re-orientation: It is optional. Stating personal comment of the writer to the story.

3. Language feature of recount text are:

- The use of nouns and pronouns. (e.g: Nadia, we her).
- The use of action verb. (e.g: went, run, played).
- The use of past tense. (e.g: we went for a trip to zoo).
- The use of time conjunction. (e.g: that, first, next,then).
- The use of advers of phrase. (e.g: in my house, two days ago, slowly).
- Use adjective. (e.g: beautiful, slow).

| Tittle | My Summer Holiday |
| :--- | :--- |
| Orientation | Last summer holiday, my faily and I spent one <br> night at the countryside. We stayed in a small <br> house. It had a big garden with lost of colorful <br> flowers and a swimming pool |
| Sequence of | First, we made a fire in front of the house. <br> Then, we sat around the fire and sang lots of <br> songs of the house. Next, we sat in the living <br> room and we watched a movie. Finally, <br> everybody fell asleep there. |
| Reorientation | We woke up very late in the morning and had <br> breakfast. In the afternoon we were all very <br> happy. |

## F. Metode Pembelajaran

Jigsaw Technique
G. Media, Alat, dan Sumber Pembelajaran

Sumber Belajar : Buku Siswa
H. Langkah-langkah Kegiatan Pembelajaran

| Kegiatan | Deskripsi kegiatan | Alokasi waktu |
| :---: | :---: | :---: |
| Prereading | Apersepsi <br> - Menyapa siswa dengan mengucapkan selamat pagi <br> - Menanyakan kabar siswa <br> - Mengajak siswa membaca sebelum memulai pelajaran <br> Motivasi <br> - Tanya jawab tentang pengetahuan/ keterampilan yang terkait dengan KD <br> - Guru menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang akan dipelajari oleh siswa | 10 menit |
| Whilereading | - Guru menjelaskan tentang teks recount dan siswa diminta untuk memperhatikannya. <br> - Guru memberikan contoh teks recount. <br> - Guru membagi siswa menjadi 5 kelompok yang dinamakan "home group" dimana setiap kelompok terdiri dari 5-6 orang. <br> - Lalu kelompok "home group" dibagi lagi menjadi "expert group" sesuai dengan nomor urut dan tugas yang sama, diman kelompok ini juga masih | 60 menit |



|  | siswa. |  |
| :---: | :---: | :---: |
| Postreading | - Bersama sama dengan peserta didik membuat rangkuman/simpulan pelajaran <br> - Melakukan penilaian atau refleksi terhadap kegiatan yang sudah dilaksanakan konsisten dan terprogram <br> - Memberikan umpan balik terhadap proses dan hasil pembelajaran | 10 menit |

## I. Penilaian

Teknik : Tes tulis
Bentuk : Pertanyaan tertulis
Instrument : Terlampir

Answer the following questions!
1 . What is the suitable title for the text above?
2. What is the main idea of paragraph 1 ?
3. What is the main idea of paragraph 2 ?
4. What is the main idea of paragraph 3 ?
5. What kind of that text?
6. Mention the generic structure of the text above!
7. What is tense used?
8. What is the purpose of the text?
9. Decide the generic structure on the text!

10 . What are the time conjunctive of the text?
J. Pedoman Penilaian

1. Untuk setiap jawaban yang benar diberi skor $=10$
2. Skor maksimal $=10 \times 10=100$
3. Nilai maksimal $=100 \mathrm{~d}$. Nilai siswa Rubrik

| No | Uraian | Skor |
| :--- | :--- | :--- |
| 1 | Urutan paragraf benar | 10 |
| 2 | Urutan paragraf salah | 0 |

Padangsidimpuan, Maret 2020
Mahasiswa

Nadia Indah Bunga Lubis
NIM. 1620300112

## RENCANA PELAKSANAAN PEMBELAJARAN

(RPP)

| Sekolah | : Madrasah Aliyah Swasta Al-Ansor Padangsidimpuan |
| :--- | :--- |
| Mata Pelajaran | $:$ Bahasa Inggris |
| Kelas/ Semester | $:$ X / II (dua) |
| Materi Pokok | $:$ Recount Text |
| Alokasi Waktu | $: 2 \times 40$ menit |

## K. Kompetensi Inti

5. Menghayati dan mengamalkan ajaran agama yang dianutnya
6. Menghayati dan mengamalkan perilaku jujur, disiplin, tanggungjawab, peduli (gotong royong, kerjasama, toleran, damai), santun, responsif dan proaktif dan menunjukkan sikap sebagai bagian dari solusi atas berbagai permasalahan dalam berinteraksi secara efektif dengan lingkungan sosial dan alam serta dalam menempatkan diri sebagai cerminan bangsa dalam pergaulan dunia.
7. Memahami,menerapkan, menganalisis pengetahuan faktual, konseptual, prosedural berdasarkan rasa ingintahunya tentang ilmu pengetahuan, teknologi, seni, budaya, dan humaniora dengan wawasan kemanusiaan, kebangsaan, kenegaraan, dan peradaban terkait penyebab fenomena dan kejadian, serta menerapkan pengetahuan prosedural pada bidang kajian yang spesifik sesuai dengan bakat dan minatnya untuk memecahkan masalah.
8. Mengolah, menalar, dan menyaji dalam ranah konkret dan ranah abstrak terkait dengan pengembangan dari yang dipelajarinya di sekolah secara mandiri, dan mampu menggunakan metoda sesuai kaidah keilmuan.
L. Kompetensi Dasar dan Indikator
1.6 Mensyukuri kesempatan dapat mempelajari bahas Inggris sebagai bahasa pengantar komunikasi internasional yang diwujudkan dalam semangat belajar.
1.7 Menunjukkan perilaku tanggungjawab, peduli kerja sama dan cinta damai dalam melaksanakan komunikasi fungsional.
1.8 Menganalisis fungsi sosial, struktur teks, dan unsur kebahasaan pada teks recount sederhana tentang pengalaman/kejadian/peristiwa, sesuai dengan konteks penggunaannya.
1.9 Menangkap makna dalam teks recount lisan dan tulis sederhana.
1.10 Menyusun teks recount lisan dan tulis sederhana tentang pengalaman/ kegiatan/kejadian/peristiwa, dengan memperhatikan fungsi sosial, struktur teks, dan unsur kebahasaan, secara benar dan sesuai dengan konteks.
M. Indikator
9. Siswa dapat bercerita mengenai pengalaman atau kejadian yang telah dialami dalam berkomunikasi.
10. Siswa dapat membuat dialog yang di dalamnya terdapat pengalaman atau kejadian yang telah dialami.
N. Tujuan Pembelajaran

Setelah mempelajari materi ini, siswa diharapkan mampu:
5. Menunjukkan kesungguhan belajar bahasa Inggris terkait recount
6. Menunjukkan perilaku peduli, percaya diri dan tunggungjawab dalam melaksanakan komunikasi terkait recount
7. Mengidentifikasi fugsi social, struktur teks dan unsure kebahasaan dari recountberbentuk teks dalam dialog.
8. Merespon makna terkait recount berbentuk teks dalam dialog.
O. Materi Pembelajaran

Tema: Recount
4. Definition: Recount text is a text which retells events or experiences in the past. Its purpose is either to inform or to entertain the audience. There is no complication among the participants and that differentiates from narratives
5. Generic Structure

- Orientation: Introduce the participants, place and time.
- Events: Describing series of event that happened in the past.
- Re-orientation: It is optional. Stating personal comment of the writer to the story.

6. Language feature of recount text are:

- The use of nouns and pronouns. (e.g: Nadia, we her).
- The use of action verb. (e.g: went, run, played).
- The use of past tense. (e.g: we went for a trip to zoo).
- The use of time conjunction. (e.g: that, first, next,then).
- The use of advers of phrase. (e.g: in my house, two days ago, slowly).
- Use adjective. (e.g: beautiful, slow).

| Tittle | My Summer Holiday |
| :--- | :--- |
| Orientation | Last summer holiday, my faily and I spent one <br> night at the countryside. We stayed in a small <br> house. It had a big garden with lost of colorful <br> flowers and a swimming pool |
| Sequence of | First, we made a fire in front of the house. <br> Then, we sat around the fire and sang lots of <br> songs of the house. Next, we sat in the living <br> room and we watched a movie. Finally, <br> everybody fell asleep there. |
| Reorientation | We woke up very late in the morning and had <br> breakfast. In the afternoon we were all very <br> happy. |

## P. Metode Pembelajaran

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| Kegiatan | Deskripsi kegiatan | Alokasi waktu |
| :---: | :---: | :---: |
| Pre- <br> reading | Apersepsi <br> - Menyapa siswa dengan mengucapkan selamat pagi <br> - Menanyakan kabar siswa <br> - Mengajak siswa membaca sebelum memulai pelajaran <br> Motivasi <br> - Tanya jawab tentang pengetahuan/ keterampilan yang terkait dengan KD <br> - Guru menjelaskan pentingnya materi yang akan dipelajari berikut kompetensi yang akan dipelajari oleh siswa | 10 menit |
| Whilereading | - Guru menjelaskan tentang teks recount dan siswa diminta untuk memperhatikannya. <br> - Guru memberikan contoh teks recount. <br> - Guru menjelaskan recount text dan generic structure. <br> - Siswa membaca contoh recount text. <br> - Guru meminta siswa untuk menuliskan pengalaman pribadinya. <br> - Siswa mengerjakan tugas yang diberikan guru. <br> Konfirmasi | 60 menit |


|  | - Guru memberikan umpan balik positif dan penguatan dalam bentuk lisan, tulisan, isyarat, maupun hadiah terhadap keberhasilan peserta didik. <br> - Memfasilitasi peserta didik untuk memperoleh pengalaman bermakna dalam mencapai kompetensi dasar. <br> - Guru menjadi fasilitator dalam menghadapi kesulitan yang dihadapi siswa. |  |
| :---: | :---: | :---: |
| Postreading | - Bersama sama dengan peserta didik membuat rangkuman/simpulan pelajaran <br> - Melakukan penilaian atau refleksi terhadap kegiatan yang sudah dilaksanakan konsisten dan terprogram <br> - Memberikan umpan balik terhadap proses dan hasil pembelajaran | 10 menit |

S. Penilaian

Teknik : Tes tulis
Bentuk : Pertanyaan tertulis
Instrument : Terlampir

Answer the following questions!

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T. Pedoman Penilaian
4. Untuk setiap jawaban yang benar diberi skor $=10$
5. Skor maksimal $=10 \times 10=100$
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## APPENDIX 2

## Calculation of Test Validity

Calculation of $\mathrm{r}_{\mathrm{pbi}}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}}$

1. Mean score from score total $\left(\mathrm{M}_{\mathrm{t}}\right)$

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{t}}=\sum \frac{x t}{N} \\
& \mathrm{M}_{\mathrm{t}}=\frac{1135}{15}=75.6
\end{aligned}
$$

2. Standart Deviation

$$
\begin{aligned}
\mathrm{SD}_{\mathrm{t}}= & \sqrt{\frac{\sum x t^{2}}{N}-\left(\frac{\sum x t}{N}\right)^{2}} \\
& =\sqrt{\frac{1288225}{15}-\left(\frac{1135}{15}\right)^{2}} \\
& =\sqrt{85881.6-(75.6)^{2}} \\
& =\sqrt{85881.6-5715.36} \\
& =\sqrt{80166,24} \\
& =283
\end{aligned}
$$

3. Mean Score $\left(\mathrm{M}_{\mathrm{p}}\right)$

## Item 1

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 1 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 2

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 2 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 3

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 3 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 4

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 4 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 5

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 5 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 6

$\mathrm{M}_{\mathrm{P}} 6=\frac{\text { total score of students that true item answer }}{n 1}$

$$
=\frac{43+91+84+92+85+86+67+54}{8}
$$

$$
=\frac{602}{8}=75.25
$$

## Item 7

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 7 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 8

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 8 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 9

$$
\begin{aligned}
M_{p} 9 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 10

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 10 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 11

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 11= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 12

$\mathrm{M}_{\mathrm{p}} 12=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 13

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 13 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 14

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 14 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 15

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 15 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 16

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{p}} 16=\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 17

$\mathrm{M}_{\mathrm{p}} 17=\frac{\text { total score of students that true item answer }}{n 1}$

$$
=\frac{43+91+84+92+85+86+67+54}{9}
$$

$$
=\frac{602}{8}=75.25
$$

## Item 18

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 18 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 19

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 19 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

Item 20
$\mathbf{M}_{\mathrm{p}} 20=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 21

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 21= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

## Item 22

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 22 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 23

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 23 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 24

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 24 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 25

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 25 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 26

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 26 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 27

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 27 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 28

$\mathrm{M}_{\mathrm{p}} 28=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 29

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 29 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 30

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 30 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 31

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 31 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 32

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 32 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 33

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 33 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 34

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 34= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 35

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 35 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 36

$\mathrm{M}_{\mathrm{p}} 36=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 37

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 37= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 38

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 38 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 39

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 39 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 40

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 40 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 41

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 41= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 42

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 42= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 43

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 43= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

## Item 44

$\mathrm{M}_{\mathrm{p}} 44=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 45

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 45 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 46

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 46 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 47

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 47 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 48

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 48 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 49

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 49 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 50

$$
\begin{aligned}
M_{p} 50 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 51

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 51 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 52

$\mathrm{M}_{\mathrm{p}} 52=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 53

$$
\begin{aligned}
& M_{p} 50=\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+67+54}{9} \\
& \quad=\frac{602}{8}=75.25
\end{aligned}
$$

## Item 54

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 50 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 55

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 55 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 56

$M_{p} 56=\frac{\text { total score of students that true item answer }}{n 1}$

$$
=\frac{43+91+84+92+85+86+67+54}{9}
$$

$$
=\frac{602}{8}=75.25
$$

$$
\mathrm{M}_{\mathrm{p}} 57=\frac{\text { total score of students that true item answer }}{n 1}
$$

$$
=\frac{43+75+75+91+92+82+94+76+60}{10}
$$

$$
=\frac{688}{10}=68.8
$$

## Item 58

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 58 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 59

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 59 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 60

$\mathrm{M}_{\mathrm{p}} 60=\frac{\text { total score of students that true item answer }}{n 1}$

$$
\begin{aligned}
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 61

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 61= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 62

$$
\begin{aligned}
M_{p} 62= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 63

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 63 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 64

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 64 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 65

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 65 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 66

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 66 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 67

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{p}} 67=\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+67+54}{8} \\
& =\frac{602}{8}=75.25
\end{aligned}
$$

## Item 68

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 68 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 69

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 69 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

## Item 70

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 70 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 71

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{p}} 71=\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+67+54}{8} \\
& \quad=\frac{602}{8}=75.25
\end{aligned}
$$

## Item 72

$$
\begin{aligned}
M_{p} 72= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 73

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 73 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 74

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 74= & \frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 75

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 75 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 76

$$
\begin{aligned}
M_{p} 76 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 77

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 77 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 78

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 78 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 79

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 79 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 80

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 80 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 81

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 81 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 82

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 82 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 83

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 83 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 84

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 84 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 85

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 85 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 86

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 86 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 87

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 87 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 88

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 88 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 89

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 89 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 90

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 90 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 91

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 91 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 92

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 92 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 93

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 93 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

## Item 94

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 94 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 95

$$
\begin{aligned}
& \mathrm{M}_{\mathrm{p}} 95=\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& \quad=\frac{688}{10}=68.8
\end{aligned}
$$

## Item 96

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 96 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 97

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 97 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 98

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 98 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 99

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 99 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 100

$$
\begin{aligned}
M_{p} 100 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 101

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 101 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 102

$$
\begin{aligned}
M_{p} 102 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 103

$$
\begin{aligned}
M_{p} 103 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+86+82+94+71+67+54+76}{12} \\
& =\frac{947}{12}=78.9
\end{aligned}
$$

## Item 104

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 104 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 105

$$
\begin{aligned}
M_{p} 105 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+92+82+94+76+60}{10} \\
& =\frac{688}{10}=68.8
\end{aligned}
$$

## Item 106

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 106 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{75+75+91+84+92+85+86+71+67+76+60}{11} \\
& =\frac{862}{11}=78.36
\end{aligned}
$$

## Item 107

$$
\begin{aligned}
M_{p} 107 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 108

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 108 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+75+75+91+84+92+85+86+82+94+54+76+60}{13} \\
& =\frac{997}{13}=76.69
\end{aligned}
$$

## Item 109

$$
\begin{aligned}
\mathrm{M}_{\mathrm{p}} 109 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

## Item 110

$$
\begin{aligned}
M_{\mathrm{p}} 110 & =\frac{\text { total score of students that true item answer }}{n 1} \\
& =\frac{43+91+84+92+85+86+82+67+54}{9} \\
& =\frac{684}{9}=76
\end{aligned}
$$

4. Calculation of the formulation $r_{\mathrm{pbI}}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}}$

## Item 1

$$
\begin{aligned}
& r_{p b 1}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
&=\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
&=0.003 \sqrt{1.5} \\
&=0.03 \times 1.2 \\
&=0.036
\end{aligned}
$$

## Item 2

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 3

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 4

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 5

$$
\begin{aligned}
& r_{p b 5}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{20.15-19}{7.44} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1.15}{7.44} \sqrt{\frac{0.86}{0.14}} \\
&=0.154 \sqrt{6.14} \\
&=0.154 \times 2.47 \\
&=0.399
\end{aligned}
$$

## Item 6

$$
\begin{aligned}
r_{p b 6}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{75.25-75}{283} \sqrt{\frac{0.53}{0.47}} \\
& =\frac{0.25}{283} \sqrt{\frac{0.53}{0.47}} \\
& =0.008 \sqrt{1.12} \\
& =0.008 \times 1.06 \\
& =0.001
\end{aligned}
$$

## Item 7

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 8

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 9

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 10

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 11

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 12

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 13

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 14

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 15

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 16

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 17

$$
\begin{aligned}
r_{p b 17}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{24-19}{7.44} \sqrt{\frac{0.53}{0.47}} \\
& =\frac{5}{7.44} \sqrt{\frac{0.53}{0.47}} \\
& =0.67 \sqrt{1.12} \\
& =0.67 \times 1.06 \\
& =0.7102
\end{aligned}
$$

## Item 18

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 19

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 20

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 21

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 22

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 23

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 24

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 25

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 26

$$
\begin{aligned}
& r_{p b 1}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
&=\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
&=0.003 \sqrt{1.5} \\
&=0.03 \times 1.2 \\
&=0.036
\end{aligned}
$$

## Item 27

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 28

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 29

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 30

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 31

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 32

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 33

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 34

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 35

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 36

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 37

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
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## Item 38

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 39

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
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## Item 40

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
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## Item 41

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 42

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 43

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 44

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 45

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 46

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 47

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 48

$$
\begin{aligned}
r_{p b 3}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
& =\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
& =0.03 \sqrt{6.14} \\
& =0.03 \times 2.47 \\
& =0.07
\end{aligned}
$$

## Item 49

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 50

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 51

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 52

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
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&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 53

$$
\begin{aligned}
r_{p b 3}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
& =\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
& =0.03 \sqrt{6.14} \\
& =0.03 \times 2.47 \\
& =0.07
\end{aligned}
$$

Item 54

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39
\end{aligned}
$$

$$
=0.013
$$

## Item 55

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 56

$$
\begin{aligned}
r_{p b 3}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
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& =0.07
\end{aligned}
$$

## Item 57

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
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&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
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## Item 58

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}}
\end{aligned}
$$

$$
\begin{aligned}
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 59

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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&=0.013
\end{aligned}
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## Item 60

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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## Item 61

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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&=0.013
\end{aligned}
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## Item 62

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& \quad=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}}
\end{aligned}
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$$
\begin{aligned}
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
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## Item 63

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\begin{aligned}
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\end{aligned}
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## Item 64

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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\end{aligned}
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## Item 65

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\end{aligned}
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## Item 66

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 67

## Item 68

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
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&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 69

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item70

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}}
\end{aligned}
$$

$$
\begin{aligned}
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 71

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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## Item 72

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\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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&=0.013
\end{aligned}
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## Item 73

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
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& =0.003 \sqrt{1.5} \\
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& =0.036
\end{aligned}
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## Item 74

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
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\end{aligned}
$$

$$
\begin{aligned}
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 75

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 76

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 77

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

Item 78
$r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}}$

$$
\begin{aligned}
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 79

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 80

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 81

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 82

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 83

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 84

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 85

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39
\end{aligned}
$$

$$
=0.013
$$

## Item 86

$$
\begin{aligned}
& r_{p b 1}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
&=\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
&=0.003 \sqrt{1.5} \\
&=0.03 \times 1.2 \\
&=0.036
\end{aligned}
$$

Item 87

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 88

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 89

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}}
\end{aligned}
$$

$$
\begin{aligned}
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39 \\
& =0.013
\end{aligned}
$$

## Item 90

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 91

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 92

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 93

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& \quad=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}}
\end{aligned}
$$

$$
\begin{aligned}
& =\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
& =0.03 \sqrt{6.14} \\
& =0.03 \times 2.47 \\
& =0.07
\end{aligned}
$$

## Item 94

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 95

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 96

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

Item 97
$r_{p b 1}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}}$

$$
\begin{aligned}
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 98

$$
\begin{aligned}
& r_{p b 3}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
&=\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
&=0.03 \sqrt{6.14} \\
&=0.03 \times 2.47 \\
&=0.07
\end{aligned}
$$

## Item 99

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 100

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## Item 101

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 102

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 103

$$
\begin{aligned}
r_{p b 3}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
& =\frac{1}{283} \sqrt{\frac{0.86}{0.14}} \\
& =0.03 \sqrt{6.14} \\
& =0.03 \times 2.47 \\
& =0.07
\end{aligned}
$$

## Item 104

$$
\begin{aligned}
r_{p b 2}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
& =\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
& =0.01 \sqrt{1.94} \\
& =0.01 \times 1.39
\end{aligned}
$$

$$
=0.013
$$

## Item 105

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 106

$$
\begin{aligned}
& r_{p b 2}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{78-75}{283} \sqrt{\frac{0.66}{0.34}} \\
&=\frac{3}{283} \sqrt{\frac{0.66}{0.34}} \\
&=0.01 \sqrt{1.94} \\
&=0.01 \times 1.39 \\
&=0.013
\end{aligned}
$$

## Item 107

$$
\begin{aligned}
& r_{p b 1}=\frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
&=\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
&=\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
&=0.003 \sqrt{1.5} \\
&=0.03 \times 1.2 \\
&=0.036
\end{aligned}
$$

## Item 108

$$
\begin{aligned}
r_{p b 3}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.86}{0.14}} \\
& =\frac{1}{283} \sqrt{\frac{0.86}{0.14}}
\end{aligned}
$$

$$
\begin{aligned}
& =0.03 \sqrt{6.14} \\
& =0.03 \times 2.47 \\
& =0.07
\end{aligned}
$$

## Item 109

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

Item 110

$$
\begin{aligned}
r_{p b 1}= & \frac{M p-M t}{S D t} \sqrt{\frac{p}{q}} \\
& =\frac{76-75}{283} \sqrt{\frac{0.6}{0.4}} \\
& =\frac{1}{283} \sqrt{\frac{0.6}{0.4}} \\
& =0.003 \sqrt{1.5} \\
& =0.03 \times 1.2 \\
& =0.036
\end{aligned}
$$

## APPENDIX 5

TABLE OF VALIDITY

|  | $M_{p}$ |  |  |  |  | $\begin{gathered} \text { rpbi } \\ \mathrm{MP} P-M t \\ \underline{p} \end{gathered}$ | $\begin{gathered} r_{t} \text { on 5\% } \\ \text { significant } \end{gathered}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No |  | $M_{t}$ | $S D_{t}$ | P | Q | $=\underset{\sqrt{\mathrm{q}}}{S D t}$ |  | Interpretation |
| 1 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.036 | 0.02 | Valid |
| 2 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.013 | 0.02 | Valid |
| 3 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| 4 | 78.36 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 5 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.399 | 0.02 | Valid |
| 6 | 20.16 | 75.6 | 283 | 0.53 | 0.47 | 0.13 | 0.02 | Valid |
| 7 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 8 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 9 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 10 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 11 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 12 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 13 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 14 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 15 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 16 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 17 | 19.61 | 75.6 | 283 | 0.53 | 0.47 | 0.7 | 0.02 | Valid |
| 18 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 19 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| 20 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 21 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| 22 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 23 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 24 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 25 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 26 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 27 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 28 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 29 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |


| 30 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 31 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 32 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 33 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 34 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 35 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 36 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 37 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 38 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 39 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 40 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 41 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 42 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 43 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.7 | 0.02 | Valid |
| 44 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 45 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 46 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 47 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 48 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| 49 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 50 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 51 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 52 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 53 | 75.25 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| 54 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 55 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| 56 | 75.25 | 75.6 | 283 | 0.53 | 0.47 | 0.07 | 0.02 | Valid |
| 57 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 58 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 59 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 60 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 61 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 62 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 63 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 64 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 65 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 66 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 67 | 75.25 | 75.6 | 283 | 0.53 | 0.47 | 0.07 | 0.02 | Valid |
| 68 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
|  |  |  |  |  |  |  |  | 0 |


| 69 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 70 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 71 | 75.25 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| 72 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 73 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 74 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 75 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 76 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.13 | 0.02 | Valid |
| 77 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 78 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 79 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 80 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 81 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 82 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 83 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 84 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 85 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.36 | 0.02 | Valid |
| 86 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 87 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 88 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 89 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 90 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 91 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 92 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 93 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| 94 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 95 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.13 | 0.02 | Valid |
| 96 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Valid |
| 97 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 98 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| 99 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 100 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 101 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.36 | 0.02 | Valid |
| 102 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.013 | 0.02 | Invalid |
| 103 | 78.9 | 75.6 | 283 | 0.8 | 0.2 | 0.07 | 0.02 | Valid |
| 104 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.013 | 0.02 | Invalid |
| 105 | 68.8 | 75.6 | 283 | 0.66 | 0.34 | 0.013 | 0.02 | Invalid |
| 106 | 76.69 | 75.6 | 283 | 0.73 | 0.27 | 0.13 | 0.02 | Invalid |
| 107 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |


| 108 | 76.69 | 75.6 | 283 | 0.86 | 0.14 | 0.07 | 0.02 | Valid |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 109 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |
| 110 | 76 | 75.6 | 283 | 0.6 | 0.4 | 0.36 | 0.02 | Valid |

## Appendix 7

## RESULT OF NORMALITY TEST IN PRE-TEST

## A. Result of the Normality Test of XI-B Putri in Pre-Test

1. The score of XI-B Putri in pre-test from low score to high score

| 25 | 28 | 31 | 32 | 32 | 35 | 35 | 37 | 38 | 38 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 40 | 40 | 41 | 41 | 42 | 42 | 42 | 43 | 43 | 44 |
| 45 | 46 | 46 | 47 | 48 | 48 | 50 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

2. High
$=50$
Low
Range
Mean
Median
Standard Dev
Variants
$=25$
= High - Low
$=25$
$=40$
$=42$
$=6.2$
$=39.5$
3. Total of classes $\quad=1+3.3 \log (\mathrm{n})$
$=1+3.3 \log (27)$
$=1+3.3(1.43)$
$=1+4$
$=5$

## RESULT OF NORMALITY TEST IN PRE-TEST

## B. Result of the Normality Test of XI-Agama in Pre-Test

1. The score of XI-B Putri in pre-test from low score to high score

| 24 | 24 | 29 | 30 | 31 | 31 | 33 | 36 | 36 | 37 |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :---: |
| 40 | 42 | 43 | 43 | 43 | 43 | 46 | 47 | 49 | 49 |  |
| 51 | 51 | 51 | 52 | 52 | 53 | 54 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

2. High
$=54$
Low
$=24$
Range
$=$ High - Low
$=30$
Mean
$=41$
Median
$=43$
Standard Dev
$=68.6$
Variants
$=75.5$
3. Total of classes $\quad=1+3.3 \log (\mathrm{n})$
$=1+3.3 \log (27)$
$=1+3.3$ (1.43)
$=1+4$
$=5$

## APPENDIX 9

## RESULT OF NORMALITY TEST IN PRE-TEST

## C. Result of the Normality Test of XI-Agama in Pre-Test

1. The score of XI-B Putri in pre-test from low score to high score

| 35 | 44 | 44 | 51 | 53 | 53 | 57 | 58 | 62 | 62 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 62 | 62 | 62 | 65 | 65 | 67 | 68 | 70 | 70 | 71 |
| 71 | 71 | 71 | 74 | 74 | 79 | 80 |  |  |  |

2. High
$=80$
Low
$=35$
Range
= High - Low
$=45$
Mean
$=62$
Median
$=62$
Standard Dev
$=10.7$
Variants
$=115.03$
3. Total of classes $\quad=1+3.3 \log (\mathrm{n})$
$=1+3.3 \log (27)$
$=1+3.3(1.43)$
$=1+4$
$=5$

## RESULT OF NORMALITY TEST IN PRE-TEST

## D. Result of the Normality Test of XI-Agama in Pre-Test

1. The score of XI-B Putri in pre-test from low score to high score

| 28 | 31 | 31 | 34 | 34 | 35 | 36 | 41 | 41 | 42 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 43 | 45 | 46 | 46 | 46 | 46 | 47 | 48 | 48 | 51 |
| 52 | 52 | 53 | 53 | 57 | 57 | 58 |  |  |  |

2. High
$=58$
Low
$=28$
Range
$=$ High - Low
$=30$
Mean $=44$
Median
$=46$
Standard Dev
$=8.2$
Variants
$=69.8$
3. Total of classes $\quad=1+3.3 \log (\mathrm{n})$
$=1+3.3 \log (27)$
$=1+3.3(1.43)$
$=1+4$
$=5$

## APPENDIX 11

## RESULT OF NORMALITY TEST IN

## PRE-TEST

A. Result of the NormalityTest of XI-

B Putri in Pre-Test

| NO | PRE TEST | z | Fz | Sz | Fz-Sz |
| :---: | :---: | ---: | :---: | :---: | :---: |
| 1 | 25 | $-2,34$ | 0,01 | 0,04 | 0,03 |
| 2 | 28 | $-1,87$ | 0,03 | 0,07 | 0,04 |
| 3 | 31 | $-1,40$ | 0,08 | 0,11 | 0,03 |
| 4 | 32 | $-1,24$ | 0,11 | 0,19 | 0,08 |
| 5 | 32 | $-1,24$ | 0,11 | 0,19 | 0,08 |
| 6 | 35 | $-0,77$ | 0,22 | 0,26 | 0,04 |
| 7 | 35 | $-0,77$ | 0,22 | 0,26 | 0,04 |
| 8 | 37 | $-0,46$ | 0,32 | 0,30 | 0,03 |
| 9 | 38 | $-0,31$ | 0,38 | 0,37 | 0,01 |
| 10 | 38 | $-0,31$ | 0,38 | 0,37 | 0,01 |
| 11 | 40 | 0,01 | 0,50 | 0,44 | 0,06 |
| 12 | 40 | 0,01 | 0,50 | 0,44 | 0,06 |
| 13 | 41 | 0,16 | 0,56 | 0,52 | 0,05 |
| 14 | 41 | 0,16 | 0,56 | 0,52 | 0,05 |
| 15 | 42 | 0,32 | 0,62 | 0,63 | 0,00 |
| 16 | 42 | 0,32 | 0,62 | 0,63 | 0,00 |
| 17 | 42 | 0,32 | 0,62 | 0,63 | 0,00 |
| 18 | 43 | 0,47 | 0,68 | 0,70 | 0,02 |
| 19 | 43 | 0,47 | 0,68 | 0,70 | 0,02 |
| 20 | 44 | 0,63 | 0,74 | 0,74 | 0,01 |
| 21 | 45 | 0,79 | 0,78 | 0,78 | 0,01 |
| 22 | 46 | 0,94 | 0,83 | 0,85 | 0,02 |
| 23 | 46 | 0,94 | 0,83 | 0,85 | 0,02 |
| 24 | 47 | 1,10 | 0,86 | 0,89 | 0,02 |
| 25 | 48 | 1,25 | 0,90 | 0,96 | 0,07 |
| 26 | 48 | 1,25 | 0,90 | 0,96 | 0,07 |
| 27 | 50 | 1,57 | 0,94 | 1 | 0,06 |
|  | Highest Score | 50 |  |  |  |
|  | Lowest Score | 25 |  |  |  |
|  | Sum | 1079 |  |  |  |


|  | Mean Score | 40 |  |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: |
|  | Median | 41 |  |  |  |
|  | L HITUNG | 0,078 |  |  |  |
|  | L TABEL | 0,173 |  |  |  |
|  | STANDART DEVIASI | 6,41 |  |  |  |

B. Result of the NormalityTest of XI-C Putri in Pre-Test

| NO | PRE <br> TEST EX | Z | FZ | SZ | FZ-SZ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 24 | $1,91$ | 0,028 | 0,074074 | 0,046066 |
| 2 | 24 | $1,91$ | 0,028 | 0,074074 | 0,046066 |
| 3 | 29 | $1,35$ | 0,089 | 0,111111 | 0,022027 |
| 4 | 30 | $1,23$ | 0,109 | 0,148148 | 0,039457 |
| 5 | 31 | $1,12$ | 0,131 | 0,222222 | 0,090997 |
| 6 | 31 | $1,12$ | 0,131 | 0,222222 | 0,090997 |
| 7 | 33 | $0,89$ | 0,185 | 0,259259 | 0,073819 |
| 8 | 36 | $0,56$ | 0,289 | 0,333333 | 0,044272 |
| 9 | 36 | $0,56$ | 0,289 | 0,333333 | 0,044272 |
| 10 | 37 | $0,44$ | 0,329 | 0,37037 | 0,041571 |
| 11 | 40 | $0,10$ | 0,458 | 0,407407 | 0,050965 |
| 12 | 42 | 0,12 | 0,548 | 0,481481 | 0,066776 |
| 13 | 42 | 0,12 | 0,548 | 0,481481 | 0,066776 |
| 14 | 43 | 0,23 | 0,593 | 0,62963 | 0,03706 |
| 15 | 43 | 0,23 | 0,593 | 0,62963 | 0,03706 |
| 16 | 43 | 0,23 | 0,593 | 0,62963 | 0,03706 |


| 17 | 43 | 0,23 | 0,593 | 0,62963 | 0,03706 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 18 | 46 | 0,57 | 0,717 | 0,703704 | 0,012925 |
| 19 | 46 | 0,57 | 0,717 | 0,703704 | 0,012925 |
| 20 | 47 | 0,69 | 0,754 | 0,740741 | 0,012825 |
| 21 | 49 | 0,91 | 0,819 | 0,814815 | 0,004182 |
| 22 | 49 | 0,91 | 0,819 | 0,814815 | 0,004182 |
| 23 | 51 | 1,14 | 0,872 | 0,888889 | 0,016586 |
| 24 | 51 | 1,14 | 0,872 | 0,888889 | 0,016586 |
| 25 | 52 | 1,25 | 0,894 | 0,925926 | 0,031531 |
| 26 | 53 | 1,36 | 0,914 | 0,962963 | 0,049382 |
| 27 | 54 | 1,48 | 0,930 | 1 | 0,069966 |
|  | Highest Score | 54 |  |  |  |
|  | Lowest Score | 24 |  |  |  |
|  | Sum | 1105 |  |  |  |
|  | Mean Score | 41 |  |  |  |
|  | Median | 42 |  |  |  |
|  | L <br> HITUNG | 0.069 |  |  |  |
|  | L TABEL | 0,173 |  |  |  |
|  | $\begin{aligned} & \hline \text { STANDART } \\ & \text { DEVIASI } \\ & \hline \end{aligned}$ |  | 8,86 |  |  |

C. Result of the NormalityTest of XI-B Putri in Prost-Test

|  | POST TEST |  |  |  |  |
| :---: | ---: | :---: | :---: | ---: | ---: |
| NO | C | Z | FZ | SZ | FZ-SZ |
| 1 | 28 | $-1,93$ | 0,03 | 0,04 | 0,01 |
| 2 | 31 | $-1,58$ | 0,06 | 0,11 | 0,05 |
| 3 | 31 | $-1,58$ | 0,06 | 0,11 | 0,05 |
| 4 | 34 | $-1,23$ | 0,11 | 0,19 | 0,08 |


| 5 | 34 | -1,23 | 0,11 | 0,19 | 0,08 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | 35 | -1,11 | 0,13 | 0,22 | 0,09 |
| 7 | 36 | -1,00 | 0,16 | 0,26 | 0,10 |
| 8 | 41 | -0,41 | 0,34 | 0,33 | 0,01 |
| 9 | 41 | -0,41 | 0,34 | 0,33 | 0,01 |
| 10 | 42 | -0,29 | 0,39 | 0,37 | 0,02 |
| 11 | 43 | -0,17 | 0,43 | 0,41 | 0,02 |
| 12 | 45 | 0,06 | 0,52 | 0,44 | 0,08 |
| 13 | 46 | 0,18 | 0,57 | 0,59 | 0,02 |
| 14 | 46 | 0,18 | 0,57 | 0,59 | 0,02 |
| 15 | 46 | 0,18 | 0,57 | 0,59 | 0,02 |
| 16 | 46 | 0,18 | 0,57 | 0,59 | 0,02 |
| 17 | 47 | 0,30 | 0,62 | 0,63 | 0,01 |
| 18 | 48 | 0,41 | 0,66 | 0,70 | 0,04 |
| 19 | 48 | 0,41 | 0,66 | 0,70 | 0,04 |
| 20 | 51 | 0,77 | 0,78 | 0,74 | 0,04 |
| 21 | 52 | 0,88 | 0,81 | 0,81 | 0,00 |
| 22 | 52 | 0,88 | 0,81 | 0,81 | 0,00 |
| 23 | 53 | 1,00 | 0,84 | 0,89 | 0,05 |
| 24 | 53 | 1,00 | 0,84 | 0,89 | 0,05 |
| 25 | 57 | 1,47 | 0,93 | 0,96 | 0,03 |
| 26 | 57 | 1,47 | 0,93 | 0,96 | 0,03 |
| 27 | 58 | 1,59 | 0,94 | 1,00 | 0,06 |
|  | Highest Score | 58 |  |  |  |
|  | Lowest Score | 28 |  |  |  |
|  | Sum | 1201 |  |  |  |
|  | Mean Score | 44 |  |  |  |
|  | Median | 46 |  |  |  |
|  | L HITUNG | 0,100 |  |  |  |
|  | L TABEL | 0,173 |  |  |  |
|  | $\begin{gathered} \text { STANDART } \\ \text { DEVIASI } \\ \hline \end{gathered}$ |  | 8.85 |  |  |

A. Result of the NormalityTest of XI-C Putri in Post-Test

| NO | P0ST |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | ---: |
| TEST EX | Z | FZ | SZ | FZ-SZ |  |
| 1 | 35 | $-2,56$ | 0,01 | 0,04 | 0,03 |


| 2 | 44 | -1,74 | 0,04 | 0,11 | 0,07 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 3 | 44 | -1,74 | 0,04 | 0,11 | 0,07 |
| 4 | 51 | -1,10 | 0,14 | 0,15 | 0,01 |
| 5 | 53 | -0,91 | 0,18 | 0,22 | 0,04 |
| 6 | 53 | -0,91 | 0,18 | 0,22 | 0,04 |
| 7 | 57 | -0,55 | 0,29 | 0,26 | 0,03 |
| 8 | 58 | -0,46 | 0,32 | 0,30 | 0,03 |
| 9 | 62 | -0,09 | 0,46 | 0,48 | 0,02 |
| 10 | 62 | -0,09 | 0,46 | 0,48 | 0,02 |
| 11 | 62 | -0,09 | 0,46 | 0,48 | 0,02 |
| 12 | 62 | -0,09 | 0,46 | 0,48 | 0,02 |
| 13 | 62 | -0,09 | 0,46 | 0,48 | 0,02 |
| 14 | 65 | 0,18 | 0,57 | 0,56 | 0,02 |
| 15 | 65 | 0,18 | 0,57 | 0,56 | 0,02 |
| 16 | 67 | 0,37 | 0,64 | 0,59 | 0,05 |
| 17 | 68 | 0,46 | 0,68 | 0,63 | 0,05 |
| 18 | 70 | 0,64 | 0,74 | 0,70 | 0,04 |
| 19 | 70 | 0,64 | 0,74 | 0,70 | 0,04 |
| 20 | 71 | 0,73 | 0,77 | 0,85 | 0,08 |
| 21 | 71 | 0,73 | 0,77 | 0,85 | 0,08 |
| 22 | 71 | 0,73 | 0,77 | 0,85 | 0,08 |
| 23 | 71 | 0,73 | 0,77 | 0,85 | 0,08 |
| 24 | 74 | 1,01 | 0,84 | 0,93 | 0,08 |
| 25 | 74 | 1,01 | 0,84 | 0,93 | 0,08 |
| 26 | 79 | 1,46 | 0,93 | 0,96 | 0,03 |
| 27 | 80 | 1,56 | 0,94 | 1,00 | 0,06 |
|  | Highest Score | 80 |  |  |  |
|  | Lowest Score | 35 |  |  |  |
|  | Sum | 1701 |  |  |  |
|  | Mean Score | 63 |  |  |  |
|  | Median | 62 |  |  |  |
|  | L <br> HITUNG | 0,084 |  |  |  |
|  | L TABEL | 0,173 |  |  |  |
|  | $\begin{gathered} \hline \text { STANDART } \\ \text { DEVIASI } \end{gathered}$ |  | 10.92 |  |  |

: $190 \mathrm{Kn} .14 / \mathrm{E} .6 \mathrm{a} / \mathrm{PP} .00 .9 / 11 / 2019$
: Pengesahan Judul dan Pembimbing Skripsi
Kepada Yth:

1. Dr. Fitriadi Lubis, M.Pd
(Pembimbing I)
2. Sri Rahmadhani Siregar, M.Pd
(Pembimbing II)
di -Padangsidimpuan
Assalamu'alaikum Wr. Wb.
Dengan hormat, sehubungan dengan hasil sidang bersama tim pengkaji judul skripsi Program Studi Tadris/Pendidikan Bahasa Inggris (TBI) Fakultas Tarbiyah dan Ilmu Keguruan IAIN Padangsidimpuan. Maka dengan ini kami mohon kepada Bapak/lbu agar dapat menjadi pembimbing skripsi dan melakukan penyempurnaan judul bilamana perlu untuk mahasiswa dibawah ini dengan data sebagai berikut:

| Nama | : Nadia Indah Bunga Lubis |
| :--- | :--- |
| NIM | $: 1620300112$ |
| Fak/Jurusan | : Tarbiyah dan Ilmu Keguruan/ Tadris Bahasa Inggris |
| Judul Skripsi | : THE EFFECT OF JIGSAW TECHNIQUE ON |
|  | READING RECOUNT TEXT MASTERY AT THE |
|  | ELEVENTH GRADE STUDENTS QF |
|  | PESANTREN AL-ANSOR PADANGSIDIMPUAN |

Demikian disampaikan, atas kesediaan dan kerjasama yang baik dari Bapak/Ibu kami ucapkan terima kasih.

## Ketua Program Studi Tadzis Bahasa Inggris

PERNYATAAN KESEDIAAN SEBAGAI PEMBIMBING



## KEMENTERIAN AGAMA REPUBLIK INDONESIA INSTITUT AGAMA ISIAMA NEGERI PADANGSIDIMPIJAN: <br> FAKULTAS TAREIYAH DAN ILAU YEGURUA:

Yth. Kepala Pesanteren AL-Ansor Padangsidimpuan Kota Padangsidimpuan

## Dengan hormat, bersama ini kami sampaikan bahwa

| Nama | Nadia Indah Bunga Lubis |
| :--- | :--- |
| NIIM | 1620300112 |
| Program Studı | Tadris/Pendidıkan Bahasa Inggris |
| Fakultas | Tarbiyah dan limu Keguruan |

adalah Mahasiswa Fakultas Tarbiyah dan limu Keguruan IAIN Padangsidimpuan yang sedang menyelesaikan Sknipsi dengan Judul "The Effect of Jigsaw Technique on Reading Recount Text Mastery at the Eleventh Grade Studets of Pesanteren AI-Ansor Padangsidimpuan".

Sehubungan dengar itu, kamı mohon bantuan Bapaklbu untuk memberikan izin penehtian sesuar dengan maksud judul diatas

Demikian disampaikan. atas kerja sama yang baik diucapkan tenmakasih


Nomor: /MA.A/08/2021
lamp :-
Padangsidimpuan, Agustus 2021
Hal : Surat Keterangan Selesai Riset

Kepada Yth:
Dekan Fakultas Tarbiyah dan Ilmu Keguruan
IAIN PAdangsidimpuan
Di
Tempat

Dengan Hormat,
Berdasarkan surat Dekan Fakltas Tarbiyah dan Ilmu Keguruan IAIN Padangsidimpuan Nomor: B-325/In.14/E.1/TL.00/03/2021 Tanggal 20 MAret 202i, tentang Mohon Izin Penelitian Penyelesaian Skripsi mahasiswa IAIN Padangsidimpuan di Madrasah Aliyah Al-Ansor, atas nama:

| N a m a | : Nadia Indah Bunga Lubis |
| :--- | :--- |
| NIM | $: 1620300112$ |
| Program Studi | : Tadris / Pendidikan Bahasa Inggris |
| Fakultas | : Tarbiyah dan Ilmu Keguruan |
| Judul Penelitian | : "The Effect Of Jigsaw Technique On Reading Recount Text | Mastery At The Eleventh Grade Students Of Madrasah

Aliyah Swasta Al-Ansor Padangsidimpuan"
Dengan ini kami sampaikan bahwa nama yang tersebut diatas benar telah melakukan penelitian di MMadrasah Aliyah Swasta Al-Ansor.
Demikian surat keterangan ini kami sampaikan untuk dapat dipergunakan seperlunya.



[^0]:    ${ }^{1}$ English Teacher, "Private Interview" Pesantren Al-Ansor Padangsidimpuan.
    ${ }^{2}$ Anisa Nugrahaini, "The Power of Two Strategy and The Mastery of Recount Text" (State Institute for Islamic Studies of Salatiga, 2016), 2, http://erepository.perpus.iainsalatiga.ac.id/1194/1/SKRIPSI ANISA.pdf.

[^1]:    ${ }^{3}$ Teika Ameiratrini and Sman Abung, "The Use of Jigsaw Strategy in Improving Students’ Achievement in Reading Comprehension at the First Grade of SMAN 1 Abung Selatan" (Universitas of Lampung, 2017), 5, https://media.neliti.com/media/publications/192456-EN-improving-students-achievement-in-readin.pdf.
    ${ }^{4}$ Iranita Sitohang and Pupung Purnawarman, "The Effectiveness of Jigsaw Strategy To Improve Students' Skill in Writing a Recount Text," English Review: Journal of English Education 3, no. 2 (2015): 2, http://journal.uniku.ac.id/index.php/ERJEE.
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[^4]:    ${ }^{11}$ Utami Widiyawati in Azijah, 9.
    ${ }^{12}$ Artono Wardiman in Azijah, 8.

[^5]:    ${ }^{13}$ Nurhayati, "Improving Students’ Achievement in Writing Recount Text Through Jumbled Sentences Technique for Eigth Grade Students of SMP Muhammadiyah 01 Medan" (2017), 25, http://repository.uinsu.ac.id/2674/.
    ${ }^{14}$ Nurhayati, 25.
    ${ }^{15}$ Asteti Hilda, "The Effectiveness of Jigsaw Technique In Faculty of Educational Sciences" ("Syarif Hidayatullah" State Islamic University Jakarta, 2017), 10, http://repository.uinjkt.ac.id/dspace/bitstream/123456789/36128/1/ASTETI HILDA-FITK.
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