

# INVESTIGATION OF STUDENT'S WORK ON FRACTION'S IMPLEMENTATION BASED ON THE JOURNAL ENTITLED "A STUDY ON THE ABILITY OF SIXTH GRADE STUDENTS IN TIBETAN AREAS TO SOLVE MATH PROBLEMS"

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## **Abstract**

*This study aims to analyse the student's performance in solving fractions and explore the students' understanding related with fraction. The subjects of this study are 2 students of grade 6 and 1 student of grade 7. In this case, as an observer who implement the mathematics problem based on the questions which is adapted from the journal, it just analyse about the students' work related to the students' understanding about fraction. No matter how the students' ways and their methods to solve the problem which is provided, whether it is true or vice versa, because the question enable of open answer, the important thing is we will recognise the students' understanding about fraction. Through analyse from their worksheet and interview, it can be said that there are several reasons why they did as they wrote in.*

**Keywords:** Fraction, Understanding, Sixth grade students.

## **INTRODUCTION**

This study involved three students, they are Andi and Alvin, the sixth grader students from SD Getas Pejaten 04. A student from seventh grade namely Dita from SMP 1 Kudus. To make it simple in this paper will call Dita as the subject 1, Andi and Alvin as subject 2 and subject 3 respectively. They must finished seven questions which are adapted from the Journal with title "A Study on the Ability of Sixth Grade Students in Tibetan Areas to Solve Math Problems." The questions that must be finished by students are

**Kerjakan soal berikut sesuai petunjuk permintaan yang diberikan.**

- Berdasarkan pemahamanmu, susunlah model (cara) untuk menyelesaikan soal tersebut yang menunjukkan langkah-langkah dalam proses penghitungan.
- Buatlah konteks realistik untuk menerapkan soal tersebut dalam kehidupan sehari-hari.

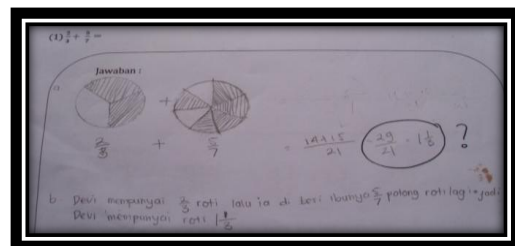
- $\frac{2}{3} + \frac{5}{7} =$
- $3 - \frac{1}{2} - \frac{2}{3} =$
- $21.25 + 9.89 + 1.62 =$
- $62.12 - 24.3 =$
- $263.6 \times 0.46 =$

## **THE ANALYSE OF STUDENTS' WORK**

### **1. The first Subject**

The first subject in this study is Dita. This is Dita's answer in calculating fractions and analyse by her answer.

#### **a. The first question**

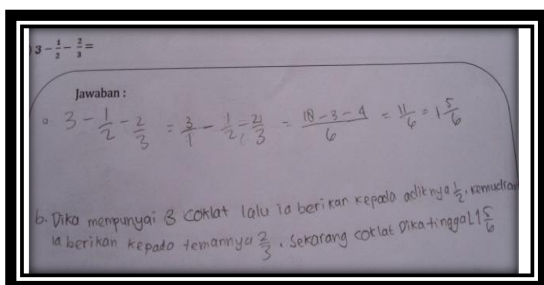


This is the answer sheet of subject 1.

It can be analysed based on several interpretation point of view. Based on the worksheet which subject 1 did, it can be noticed that students drawing a diagram to represent the fractions in the question. Afterwards, she calculates the sum of two fractions by making the same these denominators with finding the least common divisor (KPK) of those denominators. She calculates them and makes it simpler by representing in mixed fraction. Unfortunately, she did not thorough in calculating such that her answer in the final result is wrong. Nevertheless, she made the realistic context that she created quite make a sense.

In my opinion, by considering the students' work analysis and interview it can be told that the mistake that subject 1 made is because her careless. Related with her understanding about fraction she said that fraction is a number which is noted as  $\frac{a}{b}$  where  $a$  as a numerator and  $b$  as a denominator. She attempts to represent each fraction by drawing a circle diagrams, but to operate the fraction by using the diagram she recognise that facing difficulties when adding it up.

### b. The second question



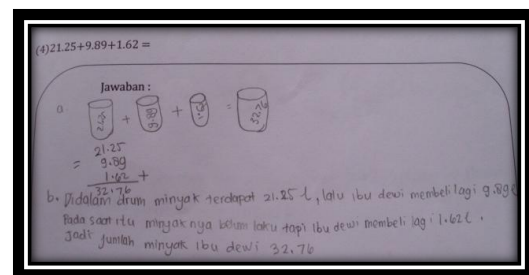
Based on the solution above, it can be seen that this subject solve the problem by using algorithm procedural with modifying 3 became

$\frac{3}{1}$  and find the same denominator for them. Afterwards, she operates them and wrote the final result as mixed fraction.

There is an interesting argument that the observer noticed from the subject 1, when asking about the number 3, she said that 3 is a whole number (unit) but after she modifying it into  $\frac{3}{1}$  she make up her opinion become 3 as a fraction. As a result, she concluded that 3 can be said as a whole number and a fraction as well. It means that she can master the concept of fractions. Relating with the contextual problem that she made, it is proper enough to implement the question into real context.

### c. The third question

This student gave incorrect answer in this question. The mistake made by the first subject is showed as follows:

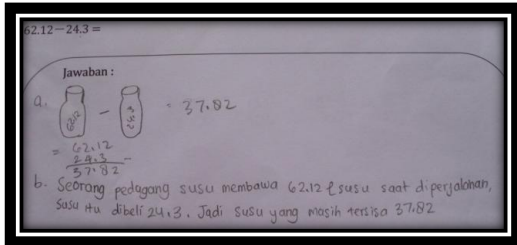


Based on the answer sheet above, subject 1 answers the question with adding the decimal fractions up as she calculating the adding up of whole number. It can be seen that she already understood to differentiate where is ten, unit, decimal or percent.

In representing the diagram, when observer asked why she figure out a tin, she explained that how big a tin is represent the volume fill it and as a final result she draw the biggest thin that means it can loaded all of the volume that required. Between contextual

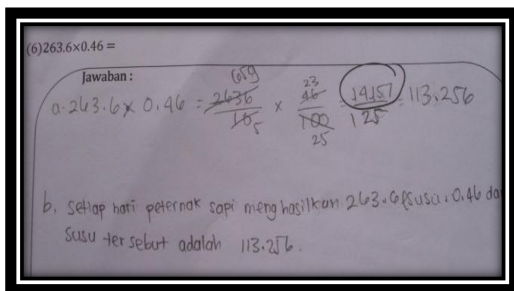
problem that she made with the problem she solve are tight related. It is very make a sense to implement on this question.

**d. The fourth question**



There is no problem needed to analyse on this answer sheet since she well done with their procedure. Besides that, she can also apply the question into an appropriate contextual problem related with their daily life.

**e. The fifth question**



Based on the answer sheet, she represented the decimal into fraction. She already mastered calculating operation that enables her to simplify every single number there by dividing with their each great common divisor (FPB). On the implementing problem related with their daily life, she interprets a multiplication as a part of a whole.

**Analysis from the student's performance:**

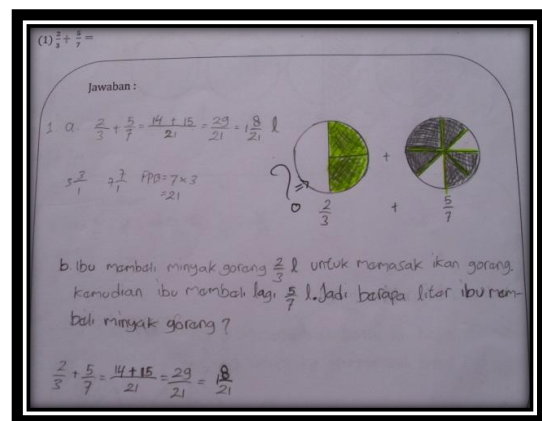
In general analysis, subject 1 seems that she already mastered the concept of fractions. She can differentiate well whether something is called by a whole (unit) or a fraction. Besides that, it enables for her to tackling the others problem even though she facing the difficult one because of her

understanding. She is also able to apply it into contextual problem related with the daily life. But, there is a weakness that is her careless while calculating may distract her final result.

**2. The second Subject**

The second subject in this study is Andi. This is Andi's answer in calculating fractions and analyse by his answer.

**a. The first question**

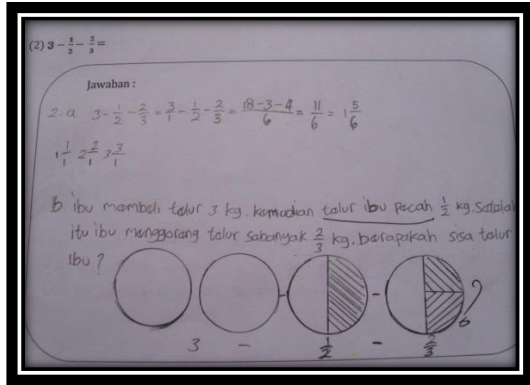


Subject 2 answered the question by finding the least common division (KPK) of the two denominators but there is a silly mistake of him by wrote FPB but his procedure is to finding KPK. Afterwards, he tried to draw a diagram representing each fraction. Based on the picture, he figured out  $\frac{2}{3}$  and  $\frac{5}{7}$  as seen above this fact makes the observer curious with his diagram and the argument of it. After conducted the interview, it was known that his argument is because he already divide the circle into 3 parts and shaded the 2 parts by ignoring whether each part is divide into the same region or not. He answered the same reason for  $\frac{5}{7}$  as well.

Regarding his answer on the answer sheet and the interview, basically there is no fault to giving reasons like that. But commonly

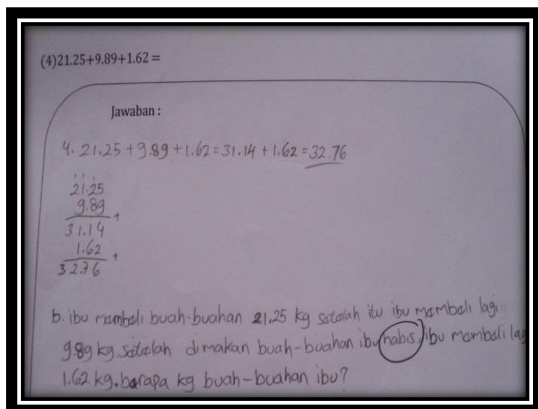
stated in the curriculum is fraction as the same part of the whole. Despite of his argument, he was already able to implement the question into contextual problem in the daily life.

**b. The second question**



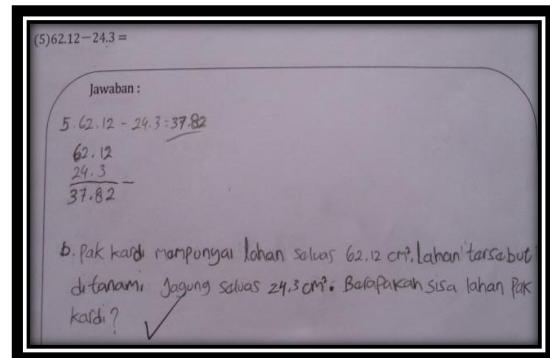
In the second question, subject 2 also answered with the same method of previous problem. In this case, the interesting thing to be asked for all subjects is the existence of 3. Subject 2 got confused while asked about that, but finally after he compared with  $\frac{1}{2}$  and  $\frac{2}{3}$  he can conclude that 3 is a unit. He also tried to represent it with diagram, but he drawn the same diagram between  $\frac{1}{2}$  and  $\frac{2}{3}$  with the reason as before. While constructing the realistic context related with the question he created some word which does not make a sense.

**c. The third question**



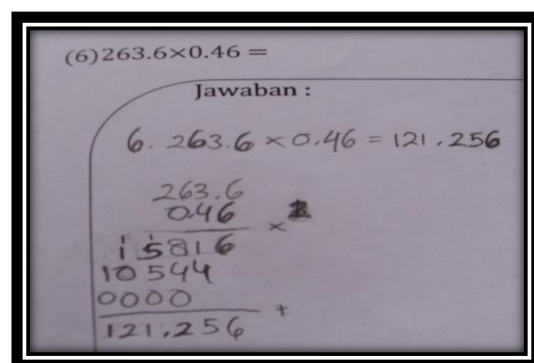
Based on the subject 2's answer sheet, he answered the question by did the operation with adding it up into stacked way. It is seen that he already able to differentiate the ten, unit, decimal and present. But then, the contextual problem that he made is rather not reasonable in real life.

**d. The fourth question**



There is no problem to analyse in this problem. Student already well done with subtraction and created the appropriate sample of contextual problem in real life.

**e. The fifth question**



Based on the student 2's answer sheet, he did the operation by multiplying it in stacked way. He put of the comma when operate them, and then put it again in the final result. While doing interview, he said that

facing difficulties to make contextual problem in real life relating multiplication of fraction.

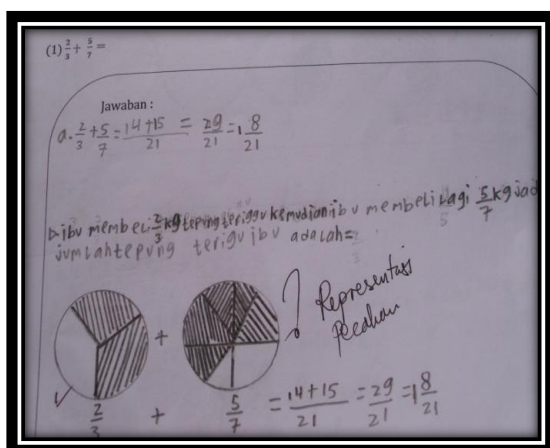
**Analysis from the student's performance:**

To sum up the subject 2 performance, it can be concluded that his understanding related fraction concept is just divide a unit into a number of part without consider the same part. Actually, this understanding is not wrong. Besides that, he is also able to create some contextual problem related the question provided.

**3. The third Subject**

The third subject in this study is Alvin. This is Alvin's answer in calculating fractions and analyse by his answer.

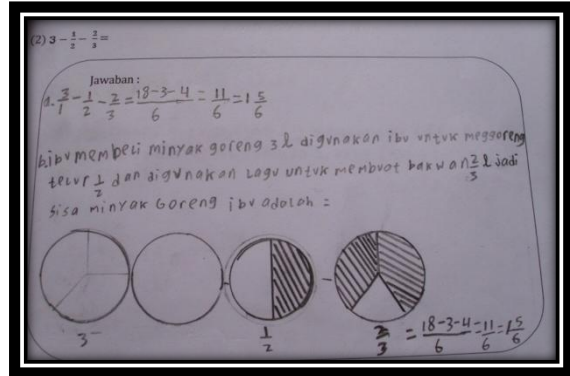
**a. The first question**



Based on this answer sheet subject 3 solve the problem by finding the least common divisor of each denominator. He made the contextual problem related with the question

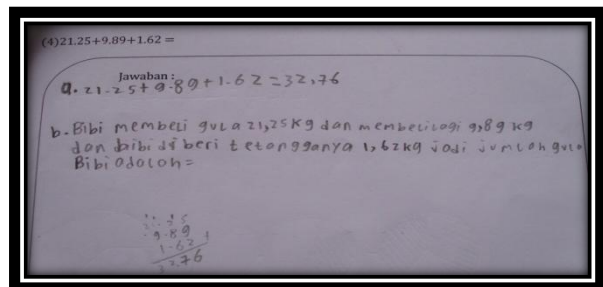
above applied in the real life. Besides that, it can be seen that he facing difficulties when represent the fraction which has a great denominator. He confused to divide the whole unit into a number of denominator required.

**b. The second question**



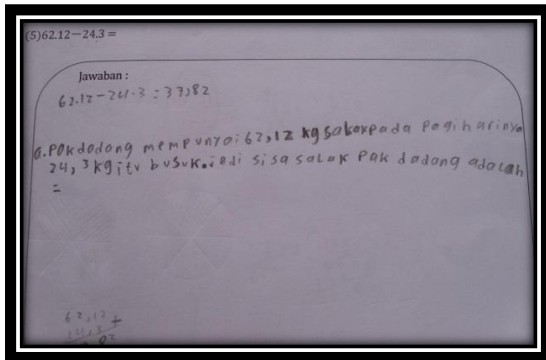
Based on his answered sheet, he changed the unit 3 into fraction form and make the same all of the denominator by finding the least common divisor of them. The fraction representation explained that he already able to define the fraction concept as a same part of a whole in this case. Besides that, he also created the contextual problem which is appropriate enough.

**c. The third question**



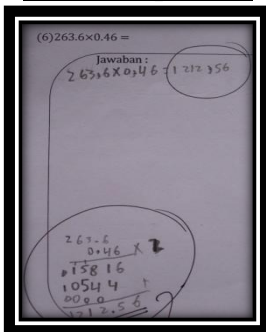
Just the same with the 2 other subject, in this case there is no problem to analyse. He already understood the decimal concept and applied them into real life contextual problem.

#### d. The fourth question



In this problem subject 3 did not experienced the difficulties, he subtracted the decimal by stack them. His contextual problem also appropriate enough with the question provided.

#### e. The sixth question



In this case, subject 3 failed to calculate the division is because confused with the decimal. Besides that, he is also careless in process calculating. He is also not able to create the contextual problem in daily life related the question.

#### *Analysis from the student's performance:*

In general, to sum up the subject 3 performance it can be said that he still hesitate to do the operation related with decimal fraction. In his understanding he just also divided the unit into the same part. Besides that, he also has not flexible yet to create the contextual problem in daily life related multiplication and division of fraction.

## CONCLUSIONS

From the students' performance for all questions, there are several conclusions while analysed and conducted the interview.

1. Students have different understanding about fraction concept, it might because of the way of teacher deliver the concept because two of subject from the same school facing the same problem.
2. In general, students relatively able to create the contextual problem relating their daily life based on the question provided, but two from three subject confused when applied the contextual problem related with multiplication and division fraction.
3. Students are not accustomed to represent the fraction into diagram and seldom using the model to help them solving the problem.

## SUGGESTIONS

1. Teachers should emphasize the fraction concept while explain the material such that students have the same understanding about fraction as the same part of whole with the appropriate teaching method.
2. Teachers should bridging the abstract knowledge from the concept and bring them into concrete thing such that make students easier to relate with the contextual problem in their daily life.
3. Teachers should accustom the students to utilize the model to facilitate and make them easier to understand and solve the problem.

## THE DIFFERENCE OF THE RESULT STUDY IN JOURNAL AND IN THIS STUDY

There is no significant difference between result from the journal and this implementation. Both of them quite the same, actually they do not make the mistake. This fact happen is because the less of emphasize from the teacher related with the fraction concept explanation. As a result, sometimes they got confused when applied it into contextual problem and represent the fraction into model.

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