

Mathematical Basic Ability Test in the Third Grade of Elementary School (a Case Study in Kebumen)

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Abstract: This research entitled “Mathematical Basic Ability Test in the 3rd grade of elementary school (A Case Study in Kebumen)” aimed (1) to describe the result of Mathematical Basic ability Test in the 3rd grade of Elementary School in Kebumen Regency, (2) to describe the mastery level of Mathematical Basic Ability Test achieved by the 3rd graders of elementary school in Kebumen Regency, (3) to describe the type of errors made by the 3rd graders of Elementary School in Mathematical Basic Ability Test. The research approach employed was descriptive. This research was a case study conducted in Kebumen Regency area in 2018. The subject of research consisted of 871 3rd graders in 40 elementary schools distributed in 5 sub districts in Kebumen Regency area. Data source employed was 3rd graders and teachers of 3rd grade of Elementary School. Meanwhile, techniques of collecting data used were test, interview, and observation. Data validation was carried out using source and technical triangulations. Data analysis was conducted using qualitative analysis technique encompassing data reduction, data display, and conclusion drawing or verification. The result of research showed that: (1) the ability of 3rd graders of elementary school in Mathematical Basic Ability Test in Kebumen Regency reached mean score of 39.24; (2) the mastery level of Mathematical Basic Ability Test achieved by 3rd graders of elementary school in Kebumen Regency has mean score of 40.46%; (3) the type of errors made the 3rd graders of elementary school in Mathematical Basic Ability Test were: (a) writing, reading name of and symbol of number, (b) ordering number, (c) place value, (d) subtracting number, (e) multiplying 2 numbers, (f) dividing number, (g) mixed count operation, (h) comparing, adding, and subtracting fraction with same denominator, (i) counting currency value, (j) square, rectangle, angle, (k) measurement of length, width, weight, and time.

Keywords: test, mathematics, basic ability

INTRODUCTION

One of assessment activities conducted in Elementary School is Basic Ability Test. This Basic Ability Test is implemented based on Republic of Indonesia Minister of Education’s Decree Number: 012/U/2002 about Assessment System in Elementary School, Special Elementary School, Basic Level of Special Elementary School, and Madrasah Ibtidaiyah (Islamic Elementary School) as included in Article 3 (2) stating that “in addition to the type of evaluation as mentioned in clause (1), Basic Ability Test and Education Quality Assessment can be conducted” (Directorate General of Primary and Secondary Education, 2002: 33).

Basic Ability test is “the one given to students to measure their basic abilities including reading, writing, and counting” (Directorate General of Primary and Secondary Education, 2002: 2). Basic Ability Test is developed according to a sustainable assessment principle, just like what has been conducted in many developed countries. Thus, this Basic Ability test is also implemented in the attempt of improving Indonesian nation’s ability of competing and standing equally with others nations. Basic Ability Test conducted in Elementary School aims to find out

students' reading, writing, and counting ability necessary in the attempt of improving learning program or remedial at school, national, and even international level. After the test has been worked on by students, the follow up should be taken, among others, by analyzing the items of Basic Ability Test and diagnosing the student work's error. Through analyzing the item of questions, it can be seen whether or not the test item has meet the good criteria and the students' learning achievement can be known. Error diagnosis can determine the types of error the students make, the cause of error, and how to correct it.

Basic Ability Test is an instrument of collecting information in the form of questions used to measure basic abilities: reading, writing, and counting, both individually and in group. Directorate General of Primary and Secondary Education (2002: 2-4) defines Basic Ability Test "as the one given to students to measure basic abilities including reading, writing, and counting". The objective of Basic Ability Test implementation is to find out the students' reading, writing, and counting abilities in the attempt of improving the learning program (remedial program). Basic Ability Test functions as: (a) a means of ensuring education quality supervision and control, (b) a feedback to the improvement of learning program in school, (c) a means of encouraging the students to improve their abilities particularly in reading, writing, and counting. Basic Ability Test has some advantages: (a) giving information and early warning (as early warning system) all at once to everyone about the students' reading, writing, and counting ability level, (b) diagnosing students' weakness in reading, writing, and counting, (c) giving feedback to teachers regarding the improvement of learning, (d) mapping the quality of school (school mapping) based on students' reading, writing, and counting abilities. The scope of counting material includes: (1) writing or ordering number, (2) working on count operation (addition, subtraction, multiplication, and division), (3) understanding shape and size/measure. Meanwhile the Mathematic Competency Standard includes: (1) writing numerical symbol up to 10,000, (2) ordering number, (3) reading numerical symbol, (4) writing the name of number, (5) identifying place values: thousands, hundreds, tens, and ones, (6) summing with the product up to 10,000, (7) subtracting number maximally 10,000, (8) working on mixed counting (summing, subtracting, multiplying, and dividing) number maximally 10,000, (9) multiplying one-digit number with two-digit number as well as ten-multiplicative number, (10) dividing three-digit number with one-digit number, (11) comparing, summing, subtracting fraction number with the same denominator, (12) comparing length, width, and weight, (3) identifying and setting the time, (14) identifying plane (square and rectangle, right and non-right angle), (15) identifying money value and being able to utilize it in daily life. The material of Counting Basic Ability Test builds on the nationally enacted curriculum and relevant materials. The test material was taken from essential materials up to 3rd grader of elementary schools contained in mathematics subject.

Diagnosis is defined as a process conducted by teachers to detect and to determine the errors the students make in absorbing the lesson delivered by teachers, particularly in working on academic tasks. Diagnosis can also be defined as an attempt of identifying the phenomenon precisely indicating the learning difficulties the students likely find. The procedure of diagnosing learning difficulty consists of 6 steps: (a) identifying, (b) localizing the form of difficulty, (c) localizing the cause of difficulty, (d) predicting the help to be given possibly, (e) determining the possible way of dealing with the difficulty, and (f) follow up (Mulyono Abdurrahman, 2003: 20; Depdiknas, 2007)

Error analysis or error pattern analysis is an error analysis on students' mathematic work aiming to identify general pattern and to find the explanation about the cause of error (Herholdt and Sapire, 2014). Error analysis enables teachers to apply an effective remediation (McGuire,

2013) and is an effective diagnostic tool to bridge the gap between the expected result and the performance. Not all students' error can be associated with conceptual and procedural knowledge. The error resulting from other factors than inadequate knowledge and skill is called "careless" (Yang, 2011) or "slipped" error (Oliver, 1996). It is called non-systematic error not due to conceptual or procedural knowledge. Yetkin (2003) reported that most errors made by students are systematic and rule-based ones rather than non-systematic ones. Error analysis focuses on systematic error occurring consistently and commonly in students' work reflecting poor knowledge and skill.

Error identification is very important to students with learning disability and students with low-achievement (performance) (Fuchs, Fuchs, & Hamlett, 1994; Salvia & Ysseldyke, 2004). Showing the students' error, teacher can deliver the learning corresponding to the students' need. Generally, students with mathematic learning difficulty usually lack of conceptual knowledge for some reasons: incapability of processing information with learning speed, having inadequate opportunity of answering the problem, teachers' inadequate feedback to learning error or difficulty, anxiety about mathematic, and visual and/or auditory processing difficulty (University of Kansas). The first step of error analysis is to identify correctly the specific error displayed in students' work. Students' inadequate knowledge is the main reason of why they cannot solve certain problem consistently (Hudson & Miller, 2006). Error analysis is a method usually used to identify the cause of students' error when they make error consistently. It is a process of reviewing students' work and then finding the misunderstanding pattern. Error in mathematic can be factual, procedural, or conceptual in nature, and can occur for some reasons (Lai, 2012: 1).

This Basic Ability Test held by Directorate General of Primary and Secondary Education and Research and Development Agency of National Education, Education Office and Regional/Ministry of Religion Office is conducted in written and action tests. Multiple-choice, fill-in-the blank, short answer, and essay forms of items are used for written tests, adjusted with the measured competency. Meanwhile, the action test is conducted using practical test implemented by the school itself. Item analysis is intended to get valid test item that can actually measure the students' ability. Item analysis can be conducted quantitatively and empirically. Quantitative analysis is conducted by the validating experts, while empirical analysis is conducted by trialing the item to be tested. The number of items tested is usually more than the trialed one. Considering the result of trial, the trialed test items are reviewed and revised to correct the weakness found so that the actually good items are obtained.

Basic Ability Test is conducted simultaneously in the end of 3rd grade school year. The test can be conducted for one or two days. Time allocated for counting (mathematic) basic competency test is 90-120 minutes. The result of Basic Ability Test is examined or corrected by the organizing school's examination team emphasizing on objectivity of sample to be analyzed nationally, provincially or at regency/municipal level. Each of competencies is measured and scored in scale ranging between 10 and 100. Counting Basic Ability Test is conducted in written manner with multiple-choice, fill-in-the blank, and essay questions. It contains 20 multiple-choice (maximum score of 40), 20 fill-in-the-blank (maximum score of 40), and 4 essay items (maximum score of 20). As such, the maximum final score in this mathematic basic ability test is 100. To find out the students' ability in Mathematical Basic Ability Test, the following criteria are suggested: (1) Score ≥ 95 (Excellent), (2) Score 80 – 94 (Very Good), (3) Score 65 – 79 (Good), (4) Score 50 – 64 (Fair), (5) Score 35 – 49 (Poor), and (6) Score < 35 (Very Poor).

Considering the result of field observation, the error analysis has been conducted on the Basic Ability Test result but no follow up has been conducted, so that the effect of Basic Competency Test activity related to either the material mastery ability or the improvement of basic competency learning has not been felt in the field. For that reason, the author is interested in conducting a study on Basic Ability Test.

Considering the elaboration above, this research aims to describe in-depth (1) the ability of 3rd graders of Elementary School in Mathematic Basic Ability Test in Kebumen Regency in 2018, and (2) the mastery level of Mathematic Basic Ability Test material achieved by the 3rd graders of Elementary School in Mathematic Basic Ability Test in Kebumen Regency in 2018; (3) the type of errors made by the 3rd graders of Elementary School in Mathematical Basic Ability Test.

METHOD

This study was a descriptive research with case study approach. The subject of research consisted of 871 3rd-graders of Elementary School in 2018, involving 40 elementary schools distributed in 5 sub districts, taking 7-9 schools from respective sub districts. The data source employed in this study consisted of teachers and 3rd- graders of Elementary School in Kebumen Regency. Meanwhile, techniques of collecting data used were test, interview, and field observation. The instrument used in this study consisted of test blue print and test item originating from National Education Department (2002: 62 – 75). The test consists of 44 items: 20 multiple choice, 20 short answer, and 4 essay items. Time allocated to work on this test is 120 minutes. Mathematics material includes: (1) writing or ordering number, (2) working count operation (adding, subtracting, multiplying, dividing), and (3) understanding shape and measure. Data validation in this study was carried out using source and technique triangulations. Data analysis was conducted using qualitative analysis technique encompassing three activities conducted continuously during and after data collection: data reduction, data display, and conclusion drawing or verification (Miles & Huberman, 1992).

The procedures used for analyzing mathematical error are: (1) collecting students' sample work for each type of problem, (2) telling the students to say verbally or to think hard when they are solving problem, (3) recording all of students' response in written and verbal format, (4) analyzing response and looking for pattern among the type of problem, (5) looking for other sample problem which can ensure that students understand the procedure or the concept poorly, (5) explaining the patterns observed and the reason concerning the students' problem, (7) interviewing students to explain how to solve problem and to confirm the predicted error pattern (Howell, Fox, & Morehead, 1993):

RESULTS AND DISCUSSION

Students' Ability in Mathematical Basic Ability Test

This research was conducted in Kebumen Regency area, involving 871 3rd-graders of elementary school, coming from 40 elementary schools distributed in 5 (five) sub districts in Kebumen Regency in 2018. The instrument used in this study was Mathematical Basic Ability Test. Mathematics material includes: (1) writing or ordering number, (2) working count operation (adding, subtracting, multiplying, dividing), and (3) understanding shape and measure. Counting Basic Ability Test is conducted in written manner with multiple-choice, fill-in-the blank, and essay questions. It contains 20 multiple-choice, 20 fill-in-the-blank, and 4

essay items. Mathematical Basic Ability test is conducted for 120 minutes. The test instrument used is entirely the one organized by National Education Department (2002: 62 – 75). Considering the result of Mathematical Basic Ability Test conducted, the mean score of Basic Ability Test can be found by school and material scope.

The result of Mathematical Basic Ability Test in 5 sub districts being the sample of research is displayed in table below.

Table 1. The result of Mathematical Basic Ability Test for the 3rd graders of Elementary School by School in Kebumen Regency in 2018

No	Sub District	Number of School	Number of Students	Mean Score of Mathematical Basic Ability Test
1	Gombong	7 Schools	139	41.05
2	Karanganyar	7 Schools	137	37.43
3	Kebumen	7 Schools	195	43.91
4	Kutowinangun	9 Schools	167	34.79
5	Prembun	10 Schools	233	39.05
Total		40 Schools	871	
Mean				39.24

Table 2. The result of Mathematical Basic Ability Test for the 3rd graders of Elementary School by Material Mastery Level

Score	Number of Students	Percentage (%)	Note
0 – 34.9	336	38.58	Very Poor
35.0 – 49.9	327	37.54	Poor
50.0 – 64.9	151	17.34	Fair
65.0 – 79.9	48	5.51	Good
80.0 – 94.9	9	1.03	Very good
95.0 – 100	0	0	Excellent
Total	871	100	

From the table above, it can be concluded that 871 3rd-graders of Elementary School coming from 40 elementary schools in 5 sub districts in Kebumen Regency area in 2018 being the sample of research, with the lowest score of 5 and the highest score of 94. Meanwhile, the mean score of Mathematical Basic Ability Test is 39.24. It means that the Mathematical Basic Ability of 3rd graders in Kebumen Regency in 2018 is 39.24.

Considering the result of data analysis, it can be seen that out of 40 elementary schools, 10 have mean score belonging to Very Poor, 26 to Poor, 2 to Fair, and only 2 to Good categories. The mean score of Mathematical Basic Ability Test for the 40 elementary schools is 39.24 (poor). Thus, Mathematical Basic Ability issue for the 3rd graders of Elementary School should be considered and solved seriously. It is consistent with the objective of Basic Ability Test implementation, to find out the students' reading, writing, and counting abilities necessary to improve the learning program (remedial program). Basic Ability Test conducted functions as: (a) a means of ensuring education quality supervision and control, (b) a feedback to the improvement of learning program in school, (c) a means of encouraging the students to improve their abilities particularly in reading, writing, and counting. Basic Ability test has some advantages: (a) giving information and early warning (as early warning system) all at once to everyone about the students' reading, writing, and counting ability level, (b) diagnosing students' weakness in reading, writing, and counting, (c) giving feedback to teachers regarding

the improvement of learning, (d) mapping the quality of school (school mapping) based on students' reading, writing, and counting abilities (National Education Department, 2002: 3 - 4).

The mastery of Mathematical Basic Ability Test material

To get a description on the mastery of Mathematics material just like the one used in Mathematical Basic Ability test scope for 871 3rd graders of Elementary School in 40 Elementary School in 5 sub districts in Kebumen Regency in 2018, see the table below.

Table 3. Result of Mathematical Basic Ability for the 3rd Graders of Elementary School by Competency Tested

No	Material and Competency Tested	Average Mastery (%)
A. Number		
1	Writing numerical symbol up to 10,000	64.25
2	Ordering number	45.43
3	Reading numerical symbol	71.87
4	Writing the name of number	75.47
5	Identifying place values: thousands, hundreds, tens, and ones	59.43
6	Summing up with the product up to 10,000	78.23
7	Subtracting number maximally 10,000	25.05
8	Multiplying one-digit number with two-digit number as well as ten-multiplicative number	39.10
9	Dividing three-digit number with one-digit number	37.10
10	Working on mixed counting (summing, subtracting, multiplying, and dividing) number maximally 10,000	18.93
11	Comparing, summing, subtracting fraction number with the same denominator.	50.65
B. Currency		
12	Identifying money value and being able to utilize it in daily life	21.77
C. Geometry		
13	Identifying plane (square and rectangle, right and non-right angle)	59.10
D. Measurement		
14	Comparing length, width, and weight	32.40
15	Identifying and setting the time	22.73
Mean Total Score of Mathematical Basic Ability Test		40.46

Considering the data as shown in table 3, it can be concluded that the 3rd graders of Elementary School's mastery of Mathematical Basic Ability test by Mathematical material scope is as follows: (1) number = 52.87%, (2) money or currency = 21.77%, (3) geometry = 59.10%, and (4) measurement = 28.10%. Thus, the average mastery of entire Mathematical Basic Ability Test Material achieved by the 3rd graders of Elementary School in Kebumen Regency in 2018 is 40.46%.

Type of Error Made by the 3rd graders of Elementary School in Mathematical Basic Ability Test

Question:

*Given that an order of numbers is 1.104; 1,109 ; 1,114 ;
The continuation of the order of numbers is,*

Answer Key: 1119

Students' Answer:

Out of 871 students, 326 (37.43%) answer the question correctly, while other 545 (62.57%) answer incorrectly. From the wrong answer, most of students answer 1019 and some others answer 1115. It means that students understand poorly the number pattern. This error is due to (a) students understanding poorly the order of numbers, and (b) students understanding poorly the number pattern.

Question:

*Given that number 9,8 1 7
In the number above, the figure occupying the tens place is.....*

Answer Key: 1

Students' Answer:

Out of 871 students, 608 (69.80%) answer the question correctly, while other 263 (30.20%) answer incorrectly. From the wrong answer, most of students answer 8 and some others answer 9. It means that students understand poorly the place value. This error is due to (a) students understanding poorly the place value, and (b) students answering the question less carefully.

Question:

6.083
3.272

.....

Answer Key: 2811

Students' Answer:

Out of 871 students, 341 (39.15%) answer the question correctly, while other 530 (60.85%) answer incorrectly. From the wrong answer, most of students answer 3011 and some others answer 9355. It means that students understand poorly the subtraction with borrowing technique. This error is due to (a) students understanding poorly the concept of subtraction, (b) students working on the big number subtracted with the small one, (c) students working on addition in subtraction question, (and) (d) students working on the question less thoroughly.

.Question:

*Mother buys 7 bundles of rambutan. Each of bundles contains 15 pieces
Then, the total of rambutan numbers is pieces*

Answer Key: 105

Students' Answer:

Out of 871 students, 477 (54.76%) answer the question correctly, while other 394 (45.24%) answer incorrectly. From the wrong answer, most of students answer 22 and some others answer 95 and 8. It means that students understand poorly the concept of multiplication as the repeated addition. This error is due to (a) students understanding poorly the concept of multiplication, (b) students working on the multiplication question using addition technique, (c) students understanding poorly the basic fact of multiplication, and (d) students reading the story problem less thoroughly.

Question:

SD Makmur has 14 classrooms. There are 36 student chairs in each of classrooms. Then, the total number of student chairs is ... pieces

Answer Key: 504

Students' Answer:

Out of 871 students, 204 (23.42%) answer the question correctly, while other 667 (76.58%) answer incorrectly. From the wrong answer, most of students answer 50 and some others answer 410. It means that students understand poorly the concept of multiplication as the repeated addition. This error is due to (a) students understanding poorly the concept of multiplication, (b) students working on the multiplication question using addition technique, (c) students understanding poorly how to determine the product of two two-digit number multiplication, (d) students mastering poorly the basic fact of multiplication, and (e) students reading the story problem less thoroughly.

Question:

$30 + 13 \times 4 = \dots\dots\dots$

Answer Key: 82

Students' Answer:

Out of 871 students, 216 (24.80%) answer the question correctly, while other 655 (75.20%) answer incorrectly. From the wrong answer, most of students answer 172 and some others answer 84. It means that students understand poorly the mixed count algorithm. This error is due to (a) students working on the question in order regardless the mixed count operation algorithm, (b) students determining the product of multiplication less thoroughly, and (c) students determining the product of mixed count operation less thoroughly.

Question:

$2,938 + 90 \times 12 - 1,609 = \dots\dots\dots$

Answer Key: 2409

Students' Answer:

Out of 871 students, 59 (6.77%) answer the question correctly, while other 812 (93.23%) answer incorrectly. From the wrong answer, most of students answer 2603 and some others answer 1427. It means that students understand poorly the algorithm of mixed count operation. This error is due to (a) students working on the question in order regardless the mixed count operation algorithm, (b) students determining the product of multiplication less thoroughly, and (c) students determining the product of mixed count operation less thoroughly.

Question:

$16 \times 14 : 7 = n$, then, the n -value is.....

Answer Key: 32

Students' Answer:

Out of 871 students, 205 (23.54%) answer the question correctly, while other 666 (76.46%) answer incorrectly. From the wrong answer, most of students answer 3 and some others answer 30. It means that students understand poorly the algorithm of mixed count operation. This error is due to (a) students determining the product of division less thoroughly, (b) students working on the question by multiplying all numbers, and (c) students determining the product of mixed count operation less thoroughly.

Question:

$(8,637 - 8,349) : 9 \times 6 + 2,488 = \dots\dots\dots$

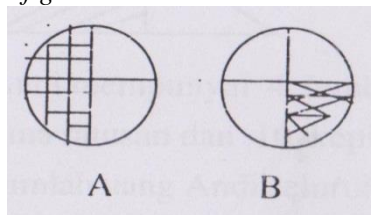
Answer Key: 2680

Students' Answer:

Out of 871 students, 205 (23.54%) answer the question correctly, while other 666 (76.46%) answer incorrectly. From the wrong answer, most of students answer 3034 and some others do not answer at all. It means that students understand poorly the algorithm of mixed count operation. This error is due to (a) students understanding poorly the algorithm of mixed count operation, and (b) students determining the product of mixed count operation less thoroughly.

Question:

Given the figure below:



The product of fraction addition of shaded area A and shaded area B is

Answer Key: $\frac{3}{4}$

Students' Answer:

Students' Answer:

Out of 871 students, 206 (23.65%) answer the question correctly, while other 665 (76.35%) answer incorrectly. From the wrong answer, most of students answer $\frac{2}{4}$ and $\frac{1}{4}$, and some others answer A. It means that students understand poorly the concept of fraction addition. This error is due to (a) students understanding poorly the concept of fraction addition, and (b) students understanding poorly the concept of fraction shown with area width.

Question:

Dodi's daily pocket money is IDR 2,000.00. He saves IDR 250,00 from daily pocket money. How much is Dodi's saving after 30 days?

Answer Key: IDR 7,500,00

Students' Answer:

Out of 871 students, 274 (31.46%) answer the question correctly, while other 597 (68.54%) answer incorrectly. From the wrong answer, most of students answer IDR 2,500.00 and IDR 750.00, and some others answer IDR 5,000.00. It means that students understand poorly the size of saving and the timing of saving. This error is due to (a) students paying less attention to saving period, (b) students multiplying the saving with saving period less thoroughly, and (c) students understanding the content of story problem less thoroughly.

Question:

Deni buys 4 pieces of writing book costing IDR 4,800.00, 2 pieces of ballpoint costing IDR 1,850,00 and a ruler costing IDR 1,250.00. Deny pays with two pieces of 5 thousands rupiah banknotes. Then, Deni's return is

Answer Key: 2.100

Students' Answer:

Out of 871 students, 117 (13.43%) answer the question correctly, while other 754 (86.57%) answer incorrectly. From the wrong answer, most of students answer IDR 4,000.00, and some others answer IDR 6,900.00. It means that students understand poorly the meaning of story problem. This error is due to (a) students understanding poorly the content of story problem, (b)

students counting the total payment less thoroughly, and (c) students counting the return less thoroughly.

Question:

Andi has 4 pieces of one thousand rupiah banknotes, 7 pieces of 5 hundred rupiah coins, and 16 pieces of one hundred rupiah coins. Andi's total money isrupiah

Answer Key: 9.100

Students' Answer:

Out of 871 students, 178 (20.44%) answer the question correctly, while other 693 (79.56%) answer incorrectly. From the wrong answer, most of students answer 27 ad 4,716, and some others answer IDR 9,200.00. It means that students understand poorly the meaning of story problem. This error is due to (a) students understanding poorly the content of story problem, (b) students counting the number of each nominal value less thoroughly, and (c) students counting the total amount of money less thoroughly.

Question:

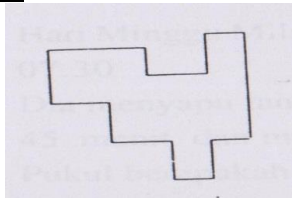


Figure above has pieces of right angle.

Answer Key: 14

Students' Answer:

Out of 871 students, 198 (22.73%) answer the question correctly, while other 673 (77.27%) answer incorrectly. From the wrong answer, most of students answer 9, and some others answer 3 and 13. It means that students understand poorly the concept of angle. This error is due to (a) students understanding poorly the concept of angle, and (b) students counting the number of right angles less thoroughly.

Question:

Nani's tape is 42-cm long. Rina's tape is 340 mm-long. Then, the correct statement is

Answer Key: Nani's tape is longer than Rina's

Students' Answer:

Out of 871 students, 213 (24.45%) answer the question correctly, while other 658 (75.55%) of students answer incorrectly. From the wrong answer, most of students answer *Nani's tape is shorter than Rina's*, and some others answer *Rina's tape is longer than Nani's*. It means that students understand poorly the concept of length unit. This error is due to (a) students understanding poorly the conversion of length unit, (b) students answering the question less thoroughly, and (b) students understanding poorly the comparison of length unit.

Question:

Mother buys $\frac{4}{6}$ kilogram of flour. Because it is not enough, she buys again $\frac{2}{6}$ kg. She then uses $\frac{5}{6}$ kg of flour to prepare cake. Her remained flour is... kg.

Answer Key: $\frac{1}{6}$

Students' Answer:

Out of 871 students, 381 (43.74%) answer the question correctly, while other 490 (56.26%) of students answer incorrectly. From the wrong answer, most of students answer 3, and some

others answer $\frac{5}{6}$. It means that students understand poorly the concept of weight unit. This error is due to (a) students understanding poorly the concept of weight unit, (b) students understanding poorly the concept of fraction, and (b) students count the weight unit less thoroughly.

Question:

Arman's weight is 28 kg. Yuni's weight is 150 ounces lighter than Arman's. So, Yuni's weight is.... kilogram

Answer Key: 26.5

Students' Answer

Out of 871 students, 33 (3.79%) answer the question correctly, while other 838 (96.21%) of students answer incorrectly. From the wrong answer, most of students answer 15, and some others answer 150. It means that students understand poorly the concept of weight unit. This error is due to (a) students understanding poorly the concept of weight unit, (b) students understanding poorly the conversion of weight unit, and (b) students understanding poorly the story problem and the intention of question.

Question:

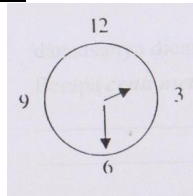


Figure of clock above shows when Rizky begins to attend English course. He attends the course for 2 hours. So Rizky goes home at

Answer Key: 16.30

Students' Answer:

Out of 871 students, 143 (16.42%) answer the question correctly, while other 728 (83.58%) of students answer incorrectly. From the wrong answer, most of students answer 04.30, and some others answer 2.30. It means that students understand poorly the concept of time. This error is due to (a) students understanding poorly the measurement of time, (b) students understanding poorly the time unit count operation, and (c) students understanding the story problem and the intention of question less thoroughly.

Question:

Dhani goes home at 13.10. He arrives at home at 14.20

The duration of Dhani's travel from school to home is minutes.

Answer Key: 70

Students' Answer:

Out of 871 students, 313 (35.94%) answer the question correctly, while other 558 (64.06%) of students answer incorrectly. From the wrong answer, most of students answer 60, and some others answer 40 and 50. It means that students understand poorly the concept of time. This error is due to (a) students understanding poorly the measurement of time, and (b) students working on the count operation involving time unit less thoroughly.

Question:

Brother goes home from school at 14.15. Father goes home from the office at 15.30. The difference of coming-home time between brother and father is minutes.

Answer Key: 75

Students' Answer:

Out of 871 students, 109 (12.51%) answer the question correctly, while other 762 (87.49%) of students answer incorrectly. From the wrong answer, most of students answer 60, and some others answer 30. It means that students understand poorly the concept of time. This error is due to (a) students understanding poorly the measurement of time, and (b) students working on the count operation involving time unit less thoroughly.

Question:

Mila cleans the house since 07.30 on Sunday.

She sweeps the floor for 25 minutes, mops it for 45 minutes, and wipes the glass for 20 minutes. What time does Mila complete her work?

Answer Key: Mila completes her work at 09.00

Students' Answer:

Out of 871 students, 227 (26.08%) answer the question correctly, while other 644 (73.92%) of students answer incorrectly. From the wrong answer, most of students answer 08.30, and some others answer 08.20. It means that students understand poorly the concept of time. This error is due to (a) students understanding poorly the measurement of time, (b) students working on the count operation about time less thoroughly, and (c) students working on the count operation involving time unit less thoroughly.

Considering the result of error analysis above, it can be concluded that the types of error made by the 3rd graders of Elementary School in Mathematical Basic Ability Test in Kebumen Regency are as follows: (1) writing, reading the name and symbol of number, (2) ordering the number, (3) place value, (4) subtracting the number, (5) multiplying 2 numbers, (6) dividing the number, (7) mixed count operation, (8) comparing, adding, subtracting fraction with same denominator, (9) currency calculation, (10) square, rectangle and angle, (11) measurement of length, width, weight, and time.

CONCLUSION

Considering the result of analysis and discussion, it can be concluded that:

1. The competency of 3rd graders of Elementary School in Mathematical Basic Ability in Kebumen Regency in 2018 reaches mean score of 39.24.
2. The mastery level of Mathematical Basic Ability Test achieved by the 3rd graders of Elementary School in Kebumen Regency reaches mean score of 40.46% .
3. Types of error made by Mathematical Basic Ability Test are as follows: (1) writing, reading name of and symbol of number, (2) ordering number, (3) place value, (4) subtracting number, (5) multiplying 2 numbers, (6) dividing number, (7) mixed count operation, (8) comparing, adding, and subtracting fraction with same denominator, (9) counting currency value, (10) square, rectangle, angle, and (11) measurement of length, width, weight, and time.

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