



<u>FACULTY</u>	: Education
<u>DEPARTMENT</u>	: CHILDHOOD EDUCATION
<u>CAMPUS</u>	: SWC
<u>MODULE</u>	: MATINB2
<u>SEMESTER</u>	: Second
<u>SUPPLIMENTARY EXAM</u>	: January 2020

ASSESSOR(S) : Mr E LIBUSHA

MODERATOR : Dr K Fonseca (University of Johannesburg)

DURATION : 2 HOURS

MARKS : 100

INSTRUCTIONS

Read the following instructions carefully before answering the questions.

1. You are allowed to use a calculator.
2. Answer all questions correctly.
3. Write neat and legibly.

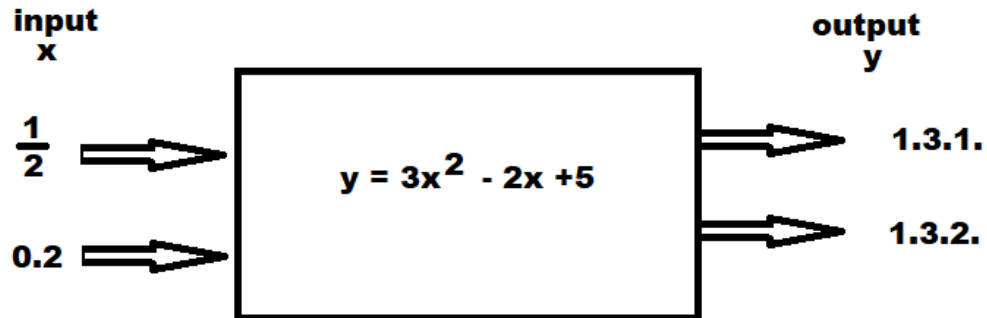
Question 1

Simplify

1.1 $\frac{(a^2 \times x^{-2})^2}{(a^4 b^{-4})^3}$ 4

1.2 $| - (-8 + 6) | - \{ 8 - | -9 + 4 | - 8(3^3 + 3) \div 6 \}$ 3

1.3 Determine the output values on the following flow diagram: 4



1.4 Solve for x:

$\frac{1}{2}x + 15 = -\frac{3}{2}(x + 6)$ 3

1.5 Solve the following:

The sum of the ages of two children is 16 years. Four years ago, the age of the older child was three times the age of the younger child. Find the present age of each child 4

[18]

Question 2

2.1 Give one example of values that are direct proportion and those that are indirect proportion (without using a table) and draw a mini graph to represent your example 6

2.2 The last time you bought pizza, 3 pizzas were just enough for 7 people. At that rate, how many pizzas should you buy, for a party of 35? 3

2.3 An oyster bed covers 36 m². Your class studies 4 m² of oyster bed. In those 4 m² you count 96 oysters. Predict the number of oysters in the entire bed 3

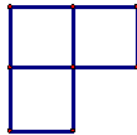
2.4 Write 1: 2 in a form of fraction 2

[14]

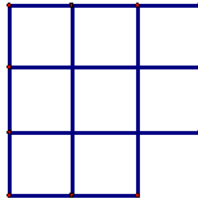
Question 3

3.1 Study the pattern and answer the following questions

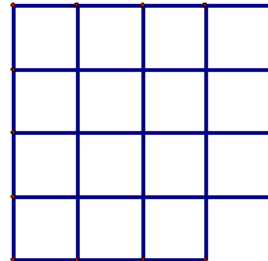
Pattern 1



Pattern 2



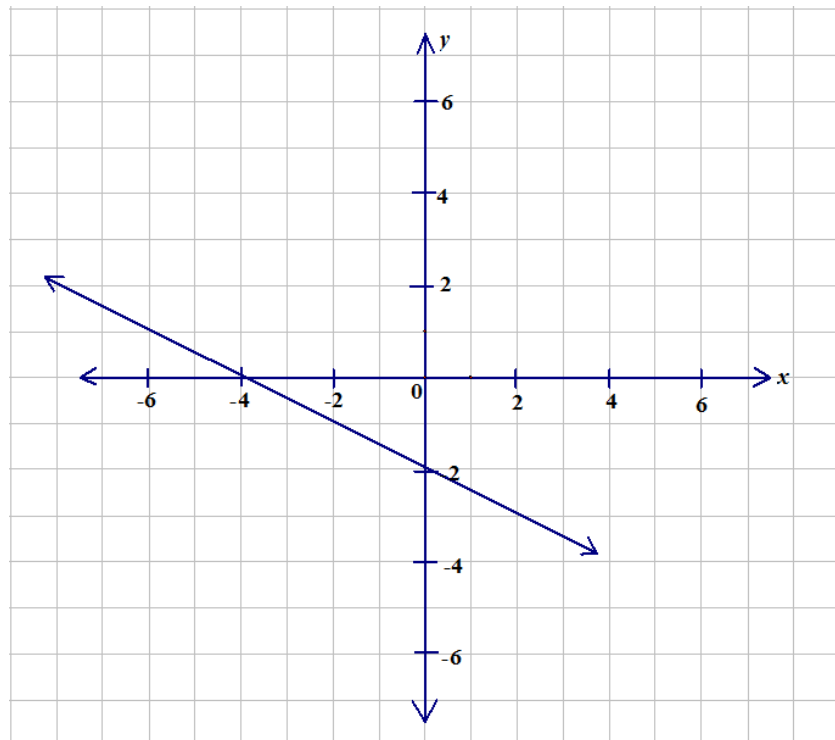
Pattern 3



- 3.1.1 Determine the number of blocks in 4th (P4) pattern 2
- 3.1.2 Write the general rule for the pattern 5
- 3.1.3 Determine how many blocks will be in P15. (use the general rule from above) 2
- 3.2 If $T_{70} = 207$, write the general rule (in the form of $T_n = \dots$) for the following pattern: ...107; 207; 307... 3
- 3.3 Study the following pattern and answer the question below.
6; 24; 96; 384; ...
- 3.3.1 Describe the rule for the following number patterns in your own words. 2
- 3.3.2 Write down the value of the 6th and 7th term 2
- 3.4 Give an example of a Fibonacci pattern. (write down 4 consecutive numbers) 2

Question 4

4.1 Study the graphs below and answer the following questions



- | | | |
|-------|---|------|
| 4.1.1 | Determine the equation of the graph of the diagram | 4 |
| 4.1.2 | Determine the equation of the line parallel to the graph above with is 2units above the graph | 3 |
| 4.1.3 | Give any equation of the graph perpendicular to the one above | 2 |
| 4.2 | If the gradient of the straight line graph is undefined, how does it affect the graph? | 2 |
| 4.3 | What is the product of the gradients of the two straight line graph that are perpendicular? | 2 |
| | | [13] |

Question 5

- | | | |
|-----|---|---|
| 5.1 | Explain what is the difference between procedural fluency and conceptual understanding. | 4 |
| 5.2 | When the following problem is given to grade 6 learners to solve: Their solutions can either demonstrate the intertwining of both conceptual understanding and procedural fluency or only procedural fluency. Illustrate how a learner with conceptual understanding would solve this problem. then, illustrate how a learner could solve this problem procedurally without really understanding the ratio concept. | 8 |

In a box, the ratio of red marbles to blue marbles is 7:4. What is the total number of blue marbles in the box if there are 21 red marbles?

5.3	Explain the effect of assessment on both conceptual understanding and procedural fluency	4
		[16]

Question 6

6.1 Read, the following case study and answer the questions below:

Learners, in Mr. Makwe's class were given an exercise where they had to rearrange decimals in ascending order. Three learners, John, James and Junior, ordered their decimals from the smallest to the biggest in the manner, shown below:

1.1; 12; 48; 102; 31.3; .675

6.1.1	Differentiate between, a slip, error and a misconception. Give one example of each	9
6.1.2	Critically analyse all the possible error/errors these learners are making. (list just 3 possible errors and explain them)	6
6.1.3	Explain what could be possible misconceptions about decimal numbers/fractions (just name 3)	6
		[21]

Total: 100