SENIOR PHASE

GRADE 7

NOVEMBER 2017

MATHEMATICS

MARKS: 100

TIME: 2 hours

Name of Learner: _____

Name of School: _____

*7 M A T H S *

This question paper consists of 14 pages.

INSTRUCTIONS

1.   Read ALL the questions carefully.

2.   Answer QUESTIONS 2 to 25 in the spaces or frames provided.

3.   All working must be done on the question paper and not on rough paper.

4.   You may use a (non-programmable and non-graphical) calculator.

INFORMATION

1.   The test counts 100 marks.

2.   The test duration is 2 hours.

3.   All diagrams are not necessarily drawn to scale.

4.   QUESTION 1 consists of 10 multiple-choice questions. Circle the letter with the correct answer.

5.   The teacher will lead you through the practice exercise before you start the test.

   PRACTICE EXERCISE

   Circle the letter with the correct answer.

   Calculate: 7 x 5 = …

   A   12
   B   35
   C   75
   D   57

   You have answered correctly if you have circled (B) above.

   NOTE:

• You will answer more questions like the one completed above. • Do your best to answer each question even if you are not sure of the answer. • Write down the answer that you think is the best and move to the next question. • When you have answered all the questions on a page, move to the next page. • Look only at your own work.

THE TEST STARTS ON THE NEXT PAGE.

1.   Multiple-choice questions.

    1.1   9 347 879 **rounded off** to the **nearest 1 000 is**?

        A   9 348 000
        B   9 348 300
        C   9 347 380
        D   9 347 370   (1)

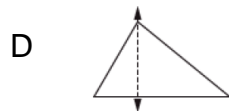   1.2   Give the **value** of the underlined digit in 23,**6**54?

        A   Sixty
        B   Six tenth
        C   Six hundredth
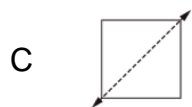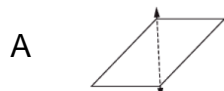   D   Six thousandth   (1)

    1.3   Write down the **missing term** in the sequence.

            5; 10; _____; 40; 80

        A   25
        B   30
        C   15
        D   20   (1)

    1.4   Which one of the following figures has only **ONE symmetry line**?

        A

        B

        C

        D
                                                                                          (1)

    1.5   Calculate:
            $4 + 2 \times 4 =$

        A   24
        B   32
        C   12
        D   10   (1)

1.6 Choose the factors of 20 from the following:

A 1; 2; 4; 5; 10; 15; 20
B 1; 2; 4; 5; 10; 20
C 1; 2; 4; 8; 10; 20
D 1; 2; 4; 5; 12; 20 (1)

1.7 Which one is the **lowest common multiple** of 8 and 24?

A 8
B 24
C 32
D 192 (1)

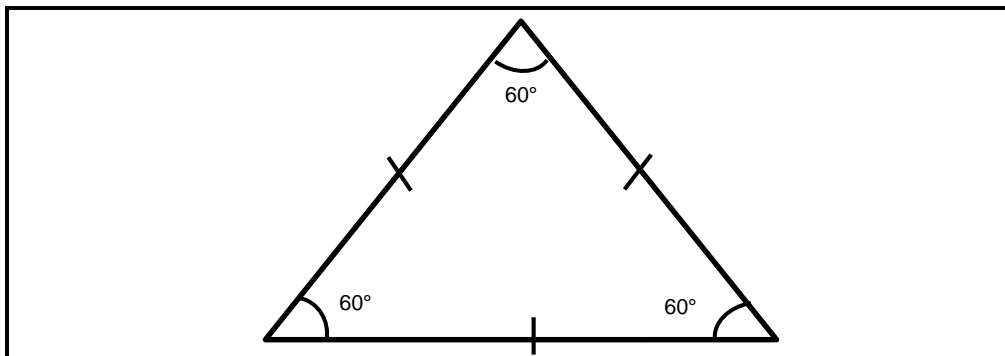1.8 Write down the **value of p**:

$p - 8 = 4$

A 4
B 6
C 12
D 2 (1)

1.9 What type of triangle is this?

A Right angled triangle
B Obtuse angled triangle
C Equilateral triangle
D Isosceles triangle (1)
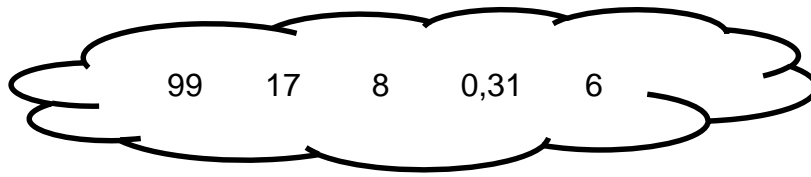
1.10 Calculate:

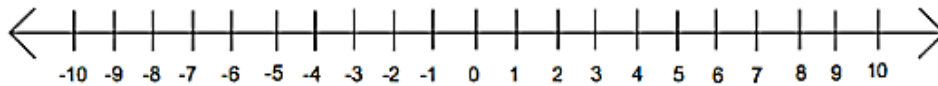$(-6) + 4 =$

A -10
B -2
C   2
D 10 (1)

[10]

2.   Choose one number from the list to answer the following statement:

       The biggest prime factor of 17: _____   (1)

       99   17   8   0,31   6

3.   **Use** the **number line** to calculate the following:

       3.1 $6 + (-8) + (-2) =$

                                                                                         (1)

       -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

       3.2   Calculate: $-5 - (-13) =$ _____   (1)

4.   Determine the value of x.

       4.1 $3x = 27$

              _____   (1)

       4.2 $\frac{x}{5} = 10$

              _____   (1)

5.   **Simplify:**

       5.1 $\frac{4}{5} \times 3\frac{1}{3} =$ (2)

       5.2 $324,348 + 17,879 - 6,507 =$ (2)

5.3

$0,048 \div 8 =$

(2)

5.4

$\sqrt{144} - 2^4 - 4 + \sqrt[3]{27} =$

(3)

5.5 Shoes are marked down from R600 to R324.
What percentage is the discount?

(2)

5.6 32 Grade 7 learners watched rugby. The ratio of the number of boys to that of girls was 5 : 3. How many girls were there?
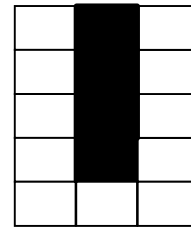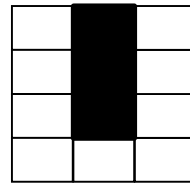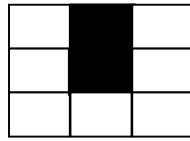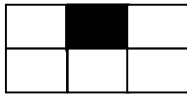
(3)

5.7 A bank gives 5% interest a year. If there is R1 500 in an account, what will be in the account after 2 years.

(3)

5.8 Themba is 12 years old. His brother is $\frac{1}{2}$ his age but he is twice as old as his sister. How old is his sister?

(2)

6. Study the following diagram pattern and then complete the table.

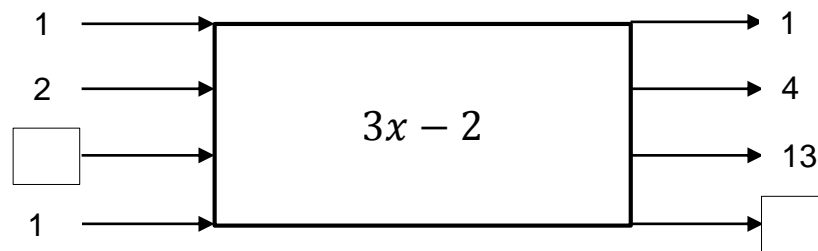| NUMBER OF BLACK TILES	NUMBER OF WHITE TILES	
1	5	
2	7	
3	9	
4	11	
5	(6.1) _____	(1)
(6.2) _____	103	(1)
n	(6.3) _____	(1)

6.4 Use your own words to describe the rule observed in the pattern given above.

_____

_____

_____ (2)

7. Complete the following flow diagram.

(2)

8. Study the table below and answer the question.

x	1	2	3	4
y	5	10	15	20

8.1 Describe the relationship of x and y in your own words:

_____

_____

_____ (2)

8.2 Express the relationship between x and y as an equation.

_____ (2)
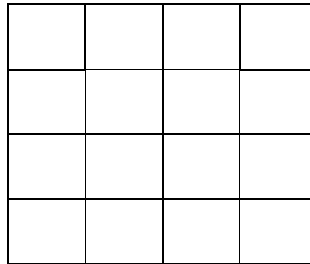
9.   Use substitution to solve the following:

      If **a = 12**; **b = 8** and **c = 4**

  9.1 $b \div c + 5^2 =$ _____   (1)

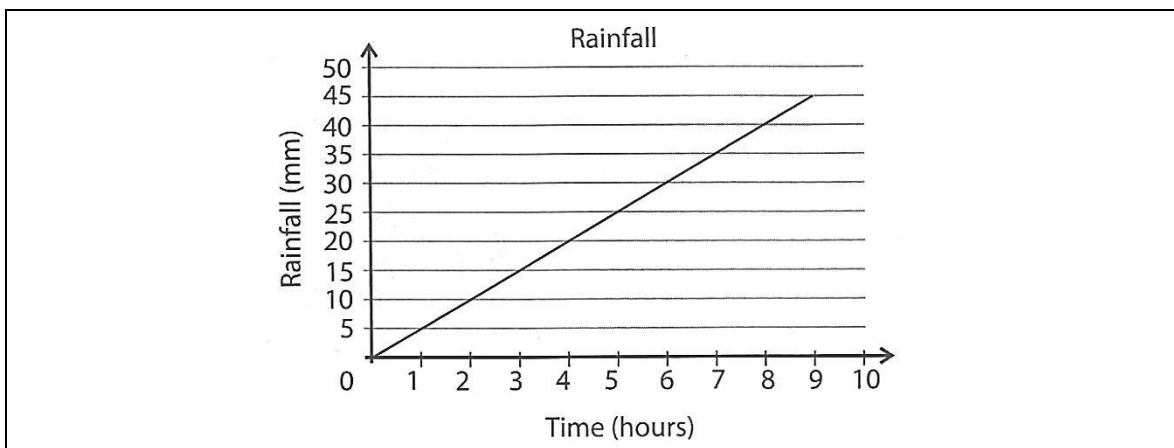 9.2 $\sqrt{c} \text{ x } a =$ _____   (1)

10.   How many squares of different sizes are there in the following figure?

                    (2)

11.   The graph below shows the rainfall in a particular area.

  11.1 For how long was the rainfall measured?

                    (1)

  11.2 How much rain has fallen after 5 hours?

                    (1)

  11.3 Is this a linear or non-linear relationship?
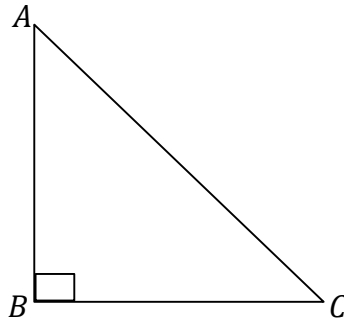
                    (1)

  11.4 Predict what the rainfall would be after 10 hours. Motivate your answer.

                    (2)

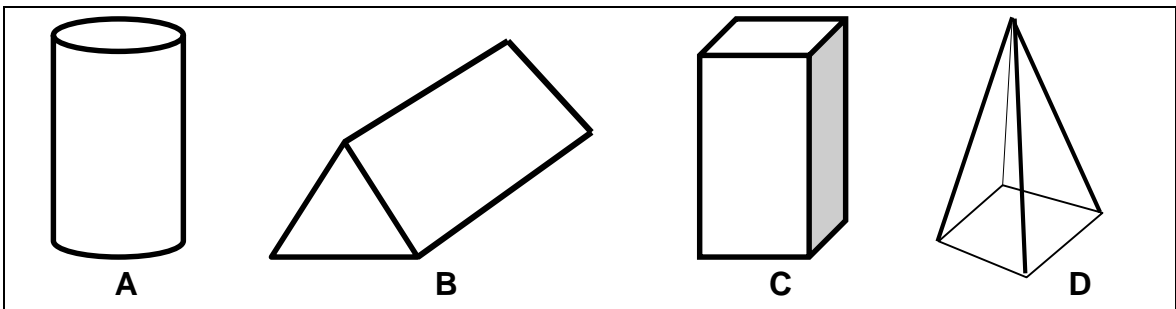12.   Sipho works 8 hours and earns R920 per day. How much does he earn per
       hour?

       _____

       _____   (2)

13.   In the right-angled triangle below, angle $\hat{A} = 45°$, determine the size of angle $\hat{C}$
       and give a reason for your answer.

       _____

       _____
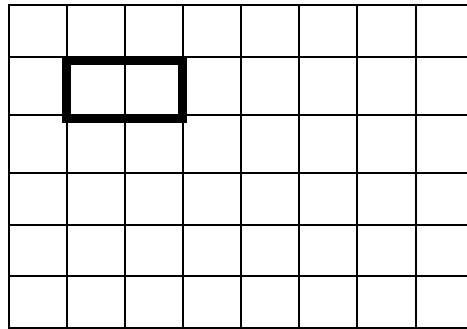
       _____   (2)

14.   Use the objects below to answer the following questions.
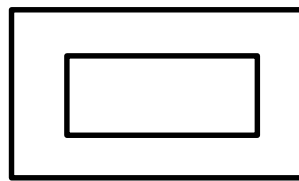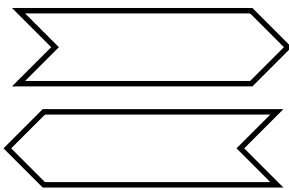

       14.1   Which object is a triangular prism?   _____   (1)

       14.2   Give the object that has eight vertices.   _____   (1)

       14.3   Identify the object with an apex.   _____   (1)

       14.4   Which object has two edges?   _____   (1)

       14.5   Write down the name of object **A**.   _____   (1)
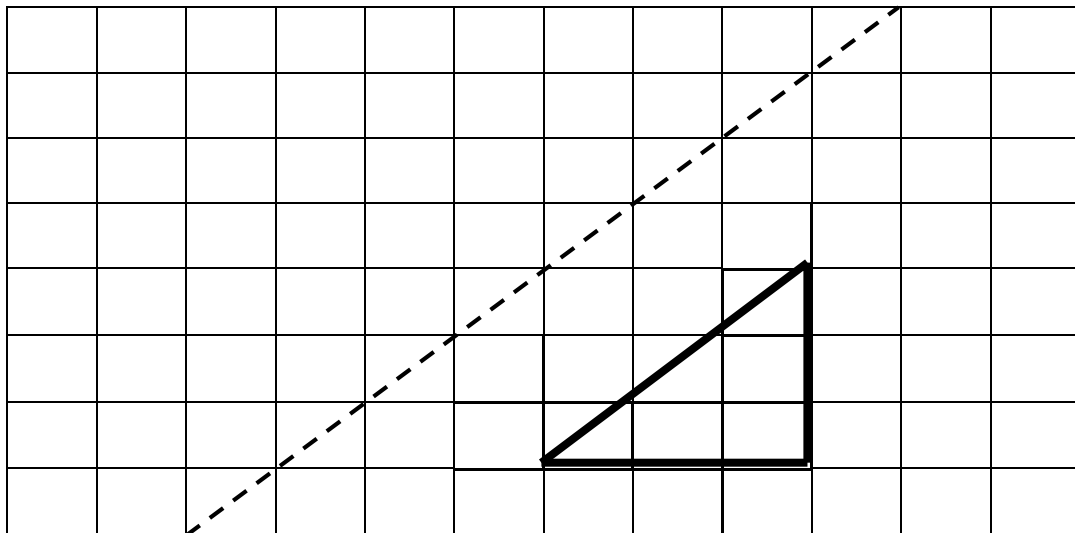
15. Enlarge the following shape by a factor of 2.

(2)

16. Study the following shapes and state whether they are similar or congruent.
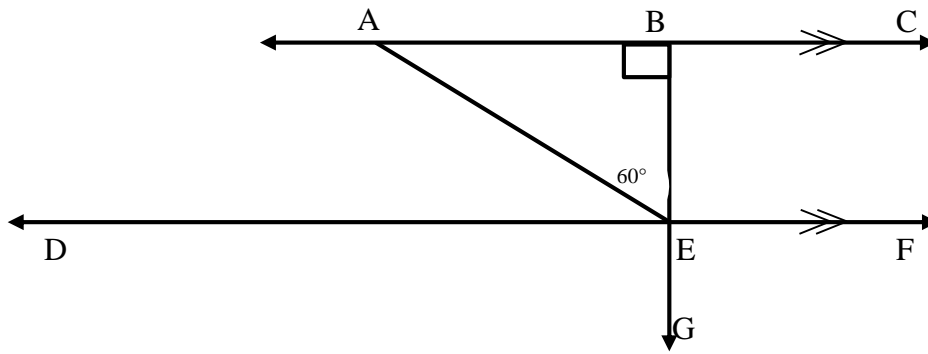

_____   _____   (2)

17. Reflect the triangle on the grid paper below over the mirror line.

(2)

18. Consider the following diagram and answer the questions that follow.

18.1 Identify perpendicular lines: _____ (1)

18.2 Identify parallel lines: _____ (1)

18.3 What is the size of $C\hat{B}E$? _____ (1)
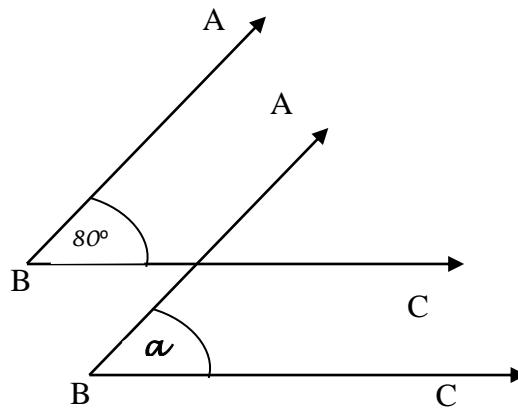
18.4 Give the name of $A\hat{B}E$. _____ (1)

18.5 Find $A\hat{E}D$ and give a reason for your answer.
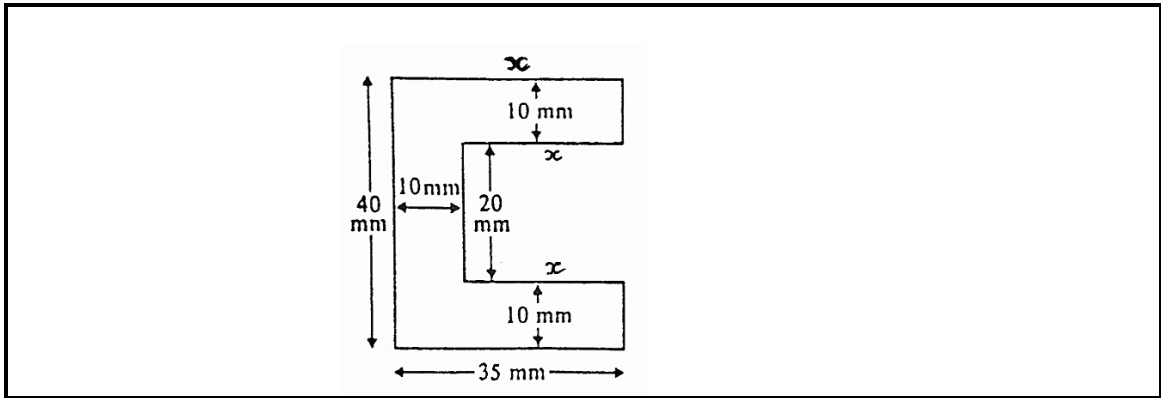
_____ (1)

_____ (2)

19. Patrick slides his $A\hat{B}C$ as shown in the diagram. Write down the value of α.
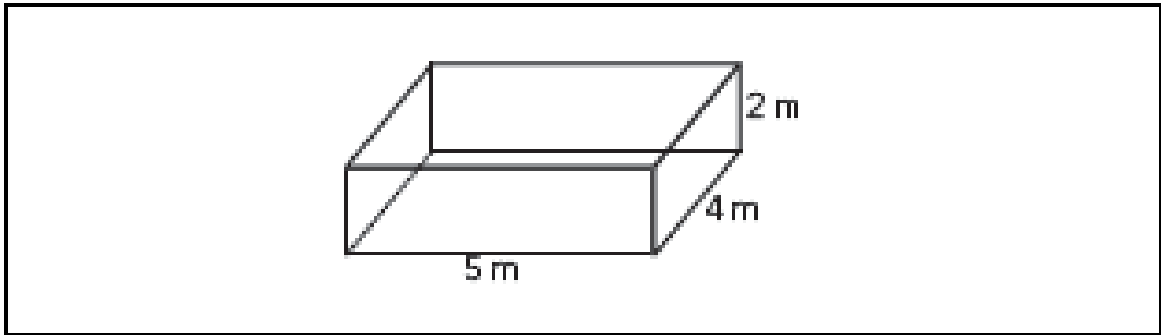

_____ (2)

20. Calculate the perimeter of the following figure.

(2)

21. A painter must paint the sides, top and bottom of this solid object. The base is a rectangle with length 5 m and breadth 4 m. The height of the sides is 2 m.

21.1 Determine the total surface area he needs to paint.

(4)

21.2 How many litres of paint does he need, if 1 ℓ covers 6 m^2

(2)

22.   A cube has a height of 30 mm. Calculate its volume and write your answer in cubic cm.

                                                                                                          (4)

23.

STEM	LEAF
1	0 1 3 3 4
2	1 1 2 4 5 7 7 7
3	0 0 4 5 5 7 8

   23.1   How many learners wrote the test?

                                                                                                          (1)

   23.2   Find the **RANGE** of the marks.

                                                                                                          (1)

   23.3   What percentage of the learners passed the test if the pass mark was 50%?

                                                                                                          (2)

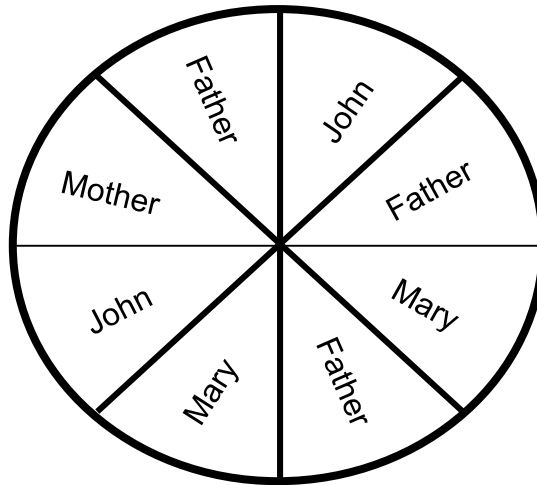   23.4   Work out the **MEAN**.

                                                                                                          (2)

24.   A fair six-sided die is rolled. What is the probability of getting a six when a fair-sided die is rolled?

                                                                                                          (1)

25. A mother bought a round cake for R80,00. She divided it for the family as follows:

25.1 How much did Father's cake pieces cost?

_____ (1)

25.2 What percentage of the cake pieces did Mary and Mother eat?

_____ (1)

25.3 What is the relationship of the female's pieces to the men's pieces?

_____ (1)

TOTAL: 100