education

Department of Education
FREE STATE PROVINCE

GRADE 9

MATHEMATICS

NOVEMBER TEST 2022

PAPER 1

DURATION 1 HOUR 30 MINUTES

MARKS: 60

This question paper consists of 4 pages

INTRUCTION AND INFORMATION

Read all the instructions carefully

1. Answer ALL questions..
2. Clearly show ALL calculations, diagrams, graphs, etc. that you used to determine the answer.
3. Number the answers correctly according to the numbering system used in this question paper.
4. You may use an approved scientific calculator (non-programmable and non-graphical) unless stated otherwise
5. Diagrams are NOT necessarily drawn to scale.
6. Answers only will NOT necessarily be awarded full marks.
7. Write neatly and legible.

QUESTION 1

1.1 The temperature at Golden gate is −5°C. It increases by 4°C. What is the new temperature? (1)

1.2 The sum of two numbers is -1 and their product is −12. Find the two numbers. (2)

1.3 Simplify the following: $2(-2) \ -\sqrt[3]{27}+(-3)^3$ (4)

1.4 Use prime factors to find the HCF and the LCM of 300 and 135 (4)

[11]

QUESTION 2

2.1 Simplify the following ratio: $120c : 30\ c$ (1)

2.2 Show by calculations which deal is cheaper: 30 milk chocolate bars for R270 or 42 mint chocolate bars for R320. (3)

2.3 In a bag of marbles there are blue and pink marbles in the ratio 3:11. If there are 18 blue marbles, how many marbles are in the bag? (3)

2.4 Simplify the following **WITHOUT** the use of a calculator

2.4.1 $a^x \times a^{x-1} \times a^2$ (1)

2.4.2 $\frac{(3\cdot 2^2)^3}{2^2\cdot 3^5}$ (3)

[11]

QUESTION 3

3.1 Simplify the following

3.1.1 $x^2-5x-11+3x^2-5x+6$ (2)

3.1.2 $(x+3)(x-4)$ (3)

3.2 Factorise the following

3.2.1 $3(y+2)-x(y+2)$ (2)

3.2.2 $4x^3-4x$ (3)

3.3 Find the value of p if $(x-4)$ is a factor $of\ x^2-px+20$ (3)

3.4 Simplify: $\frac{x^2+xy-2y^2}{x^2-y^2}$ (3)

[16]

QUESTION 4

Solve for x:

4.1 $35 + x = 75$ (1)

4.2 $12x - 10 = 6x + 32$ (2)

4.3 $2^{x+1} = 1$ (2)

4.4 $\frac{x-11}{2} - 5 = \frac{x+2}{6}$ (3)

[8]

QUESTION 5

5.1 Study the pattern below and **write down** the 7th and 9th term (2)

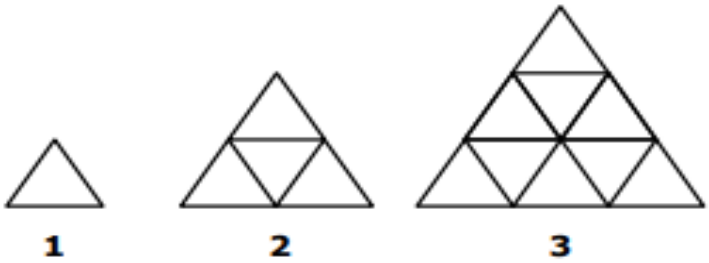
$\frac{1}{2}$; 1 ; $\frac{3}{2}$; 2 ; $\frac{5}{2}$; 3 ; ...

5.2 Consider the pattern: $14; 12; 10; 8;$ ...

5.2.1 Write the general rule (T_n) for the pattern. (2)

5.2.2 Which term has the value of -74 (2)

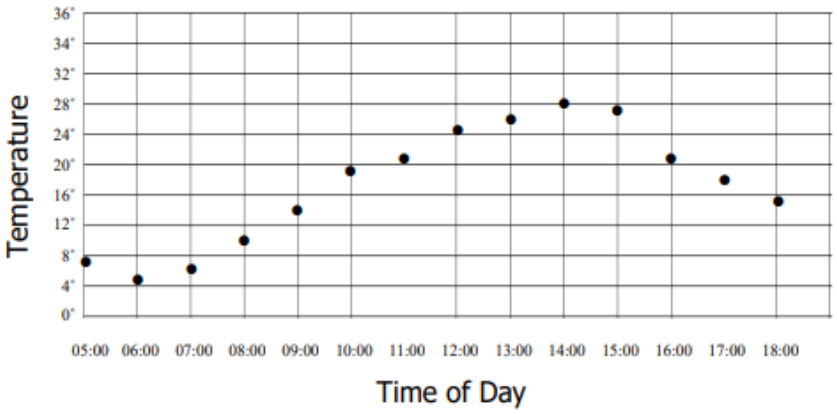
5.3 Study the pattern below and find the general rule (1)



[7]

QUESTION 6

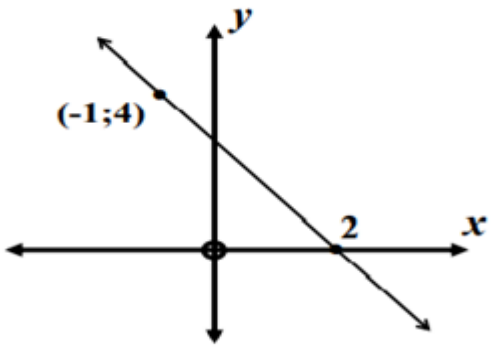
6. The graph below shows the temperature on a certain day taken every hour.



6.1 Is the data discrete or continuous? **(1)**

6.2 Sketch the graph of $y = 2x - 4$ **(3)**

6.3 Determine the equation of the graph below **(3)**



[7]

TOTAL [60]

NAME: _____

GRADE 9: CLASS: _____

ANNEXURE A

6.2

