Hillcrest High School

Grade 8

MATHEMATICS P1

NOVEMBER 2024

MARKS: 120

TIME: 2 Hours

EXAMINER: Mrs F. Oosthuyzen

MODERATOR: Ms G. Stow

NAME :											CLASS:	
TEACHER:											DATE:	
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	TOTAL	%
8	8	7	5	6	2	17	6	13	24	7	17	120	

Read the following instructions carefully before answering the questions.

Instructions:

1. This examination consists of **12** questions and **13** pages.
2. Answer ALL the questions in the space provided.
3. Clearly show ALL calculations, diagrams, graphs, etc. which you have used in determining your answers.
4. Answers only, will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers correct to TWO decimal places, unless stated otherwise.
7. Write neatly and legibly.

Question 1

Multiple Choice.

Choose the correct answer and write the corresponding letter in the Answer column.

Answers:

1.1 $-6 + (-13) =$

A. -19	B. 7
C. 19	D. -7

1.2 An undefined number:

A. $\frac{5}{0}$	B. $\frac{-5}{-5}$
C. $\frac{0}{5}$	D. $\frac{-5}{-1}$

1.3 Which of the following is NOT a simplified ratio?

A. $3:5$	B. $0{,}2:5$
C. $80:1$	D. $11:2$

1.4 $2x \times 3x^3 =$

A. $6x^3$	B. $5x^4$
C. $6x^4$	D. $5x^3$

1.5 $y^4 + y^4 =$

A. y^8	B. $2y^4$
C. y^{16}	D. $2y^8$

1.6 $\sqrt[3]{-27} =$

A. $non-real$	B. 3
C. -3	D. $undefined$

1.7 $\square + 12 \times 4 = 56$

The missing value is:

A. -2	B. -8
C. 8	D. 2

1.8 Insert the following symbol to make the statement true:

$$\frac{5}{7} \square \frac{11}{15}$$

A. $>$	B. $<$
C. $=$	D. $+$

[8]

Question 2

Answer True or False for each of the following statements:

		True / False
2.1	The lowest common multiple for 5 and 6 is 30.	
2.2	All of the factors of 15 are: $3; 5; 15$	
2.3	The first five multiples of 16 are: $1; 2; 4; 8; 16$	
2.4	13 and 31 are both prime numbers.	
2.5	The prime factors of 60 are: $2; 3; 5$	
2.6	1,658 rounded to the nearest 2 decimal places is $1,65$	
2.7	Five times a number then decreased by ten is written as: $5(x - 10)$	
2.8	$4x^3 - 2x + 5$ In the given expression the degree is 3.	

[8]

Question 3

Calculate the following, show all working.

3.1 $\frac{2}{7}+\frac{4}{5}$ (2)

3.2 $2\frac{1}{3}-\frac{4}{8}$ (3)

3.3 $\frac{2}{3}\div\frac{5}{8}$ (2)

[7]

Question 4

Convert the following:

4.1 $\frac{1}{5}$ *into a percentage* (1)

4.2 0,027 *into a percentage* (1)

4.3 60% *into a fraction in simplest form* (2)

4.4 45,5% *into a decimal* (1)

[5]

Question 5

Answer the following questions. Show all working.

5.1 Sibusiso buys a jacket for R245, after a few months he sells it and makes a 20% profit. How much did he sell it for? (3)

5.2 Calculate the percentage decrease if the price of a bag goes down from $R\,699$ to $R\,399$. (3)

[6]

Question 6

Fill in $<$; $>$ or $=$ to make the statements true:

6.1 $7 + 4 \times 5 \square (7 + 4) \times 5$ (1)

6.2 $0{,}04 \square 40 \div 100$ (1)

[2]

Question 7

7.1 Simplify the following ratios:

7.1.1 $90 : 85 : 5$ (2)

7.1.2 $45ml : 2l$ (2)

7.1.3 $\frac{4}{5} : \frac{3}{8}$ (3)

7.2 In a class of students there are 12 boys and their ratio of girls : boys are 3:2. (2)
How many girls would there be in the class?

7.3 The number of unemployed people has increased in a ratio of 4: 7. If there is now an unemployment rate of 28%, what was the previous unemployment rate? (2)

7.4 A car travels 420 km in 4 hours and 30 minutes.

7.4.1 Calculate the speed that the car travels at. (2)

7.4.2 Calculate the speed of the car rounded to the nearest whole number. (1)

7.5 An amount of R 12 000 was won in a competition and split between three players in a ratio of $1:3:4$. (3)
Give the value of the person's winnings who received the middle portion.

[17]

Question 8

Given the following expression, answer the questions that follow:

$$-5x^3 + 2x - 7$$

8.1 Write the coefficient of x (1)

8.2 Write the variable used in the expression. (1)

8.3 Write the exponent of the first term. (1)

8.4 Write the constant of the expression. (1)

8.5 Write down the number of terms and hence, the name of this expression. (2)

[6]

Question 9

Given the following sequence:
3 ; 8 ; 13 ; 18 ; …

9.1.1 Write down the rule in words (2)

9.1.2 Write down the next three terms (1)

9.1.3 Write down the rule in algebraic language (2)

9.1.4 Write down the 15^{th} term (2)

9.1.5 Which term has a value of 63? (3)

9.2 Given the 2^{nd} term is 27 and the 4^{th} term is 39, determine the equation of the sequence. Show your working. (3)

[13]

Question 10

Simplify the following algebraic expressions.

10.1 $\frac{-44x^3y}{-11xy^2}$ (3)

10.2 $3a \times 3 + 3 \times 2a + 4$ (4)

10.3 $5p^2 - 2p + 4p^2 - p$ (2)

10.4 $(-3x^3y)^4$ (3)

10.5 $3a^4 \times 2a^5$ (2)

10.6 $\frac{2a^2c^4 \times 6a^3c}{18a^4c^6}$ (4)

10.7 $\sqrt{25x^4 - 16x^4}$ (3)

10.8 $\left(\frac{2m^2}{5n^4}\right)^2$ (3)

[24]

Question 11

Calculate the value of the following expression if $a = -2, b = 4, c = -1$ and $d = 3$.
All working must be shown.

11.1 $a - b \times d$ (3)

11.2 $2d^3 \times \frac{bc}{a}$ (4)

[7]

Question 12

Solve the following equations. All working must be shown.

12.1 $-3x = 30$ (1)

12.2 $5k - 7 = -28 - 2k$ (3)

12.3 $3(x-8)=30$ (3)

12.4 $\frac{2y+4}{3}=8$ (3)

12.5 $4m-3n=3(m-n+2)$ (3)

12.6 $4(x+4)-3=(x-5)7$ (4)

[17]