BERGVLIET HIGH SCHOOL

MATHEMATICS DEPARTMENT

NOVEMBER EXAMINATION

GRADE 8

MATHEMATICS PAPER 1

14 November 2025

MARKS: 60

TIME: 75 MINUTES

SET BY: MS T. HERBERT

MODERATOR: MR D. LEKAY

This question paper consists of 6 questions and 9 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Clearly show and label ALL calculations, diagrams, graphs, etcetra that you have used in determining your answers.
2. Answers only will not necessarily be awarded full marks
3. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
4. If necessary, round off answers to TWO decimal places, unless stated otherwise.
5. Write neatly and legibly.
6. Use blue or black ink pen. Answers written in pencil will not necessarily be marked.

QUESTION	1	2	3	4	5	6	TOTAL
TOTAL	10	7	7	11	11	14	
MARK							
MODERATED							

Question 1

1.1 Match the numbers below, to their descriptions. One description may have multiple associated numbers. (5)

-4		7	$\sqrt{16}$
	$-\frac{2}{5}$	-0.3333	
-0.33			
	2.5	$\frac{22}{7}$	π

Description	Number
Example: irrational numbers	π
Rational numbers	
Positive whole numbers	
Factors of 48	
Equivalent to $-\frac{14}{35}$	
Approximations of each other (this answer will have two numbers)	

1.2 Choose from the list of words to fill in the missing words in the blank spaces. One mark is given for each missing word.

	Multiply		Straight – line	Curved	Constant	Horizontal
x	y	Scale	Divide	Subtract	Vertical	Terms

1.2.1 A non-linear graph is a graph that does not form a _____ (1)

1.2.2 The origin is where the _____ – axis and the _____ – axis (1)

intersect, with coordinates (0;0).

1.2.3 When raising a power to a further power, keep the base the same and (1)

_____ the exponents.

1.2.4 An example of an arithmetic number pattern is one where there is a (2)

[ ] difference between consecutive [ ] .

[11]

Question 2

Without a calculator, and showing all steps, calculate the following:

2.1 $\left(\frac{18}{3}\right) \div \left(2\frac{1}{12}\right)$ (2)

2.2 $5 - 2[2 \times 3^3 + 4(2 - \sqrt{64})]$ (4)

[6]

Question 3

Simplify the following expressions

3.1 $x^2y + 7xy + 4x^2y + 8xy$ (2)

3.2 $5x - 2x\,(x + 3) + 6x$ (2)

3.3 $3\,(\,2x^3y^5\,)^2$ (3)

[7]

Question 4

Solve for x in each of the following equations

4.1 $5x + 1 = 24$ (2)

4.2 $-7x - 14 = -11x + 22$ (3)

4.3 $2x^3 = \frac{125}{4}$ (3)

4.4. Kyle and Shiloh share a packet of sweets in the ratio $7x : 5x$. Kyle gets 14 sweets more than Shiloh. How many sweets were in the packet? (3)

[11]

Question 5

Roblox is an online platform where users can play and create games. Robux is the virtual currency used to purchase in-game items and accessories. Developers are the creators who build these games and experiences and can earn Robux from their creations.

5.1 In a popular, but difficult, game the ratio of players who successfully complete Level 1 to those who fail is 7:3.

5.1.1 Express the ratio of those that failed, to those that passed as a fraction. (1)

5.1.2 The developer of this game earns an average of 450 Robux per hour from the number of people that pass Level 1. If 210 players play the game, calculate how many Robux they earn in 5 hours? (4)

5.2 In 2016 20% of Roblox players are under the age of 12, and is 66 million people played Roblox. How many players were under the age of 12? (1)

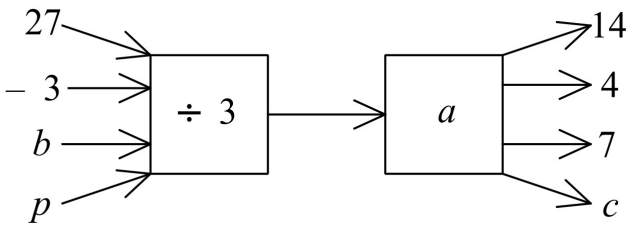
5.3 A report found that 36% of daily active users are exposed to harmful content, hence based on your previous answer determine the number of players under 12 that might be exposed to harmful content. (2)

5.4 A player buys a set of items, the cost of which following the sequence 5, 11, 17…. How many items can they buy before they spend their 1000 Robux? (3)

[11]

Question 6

6.1 Find a, b, and c, in the following flow diagram (3)



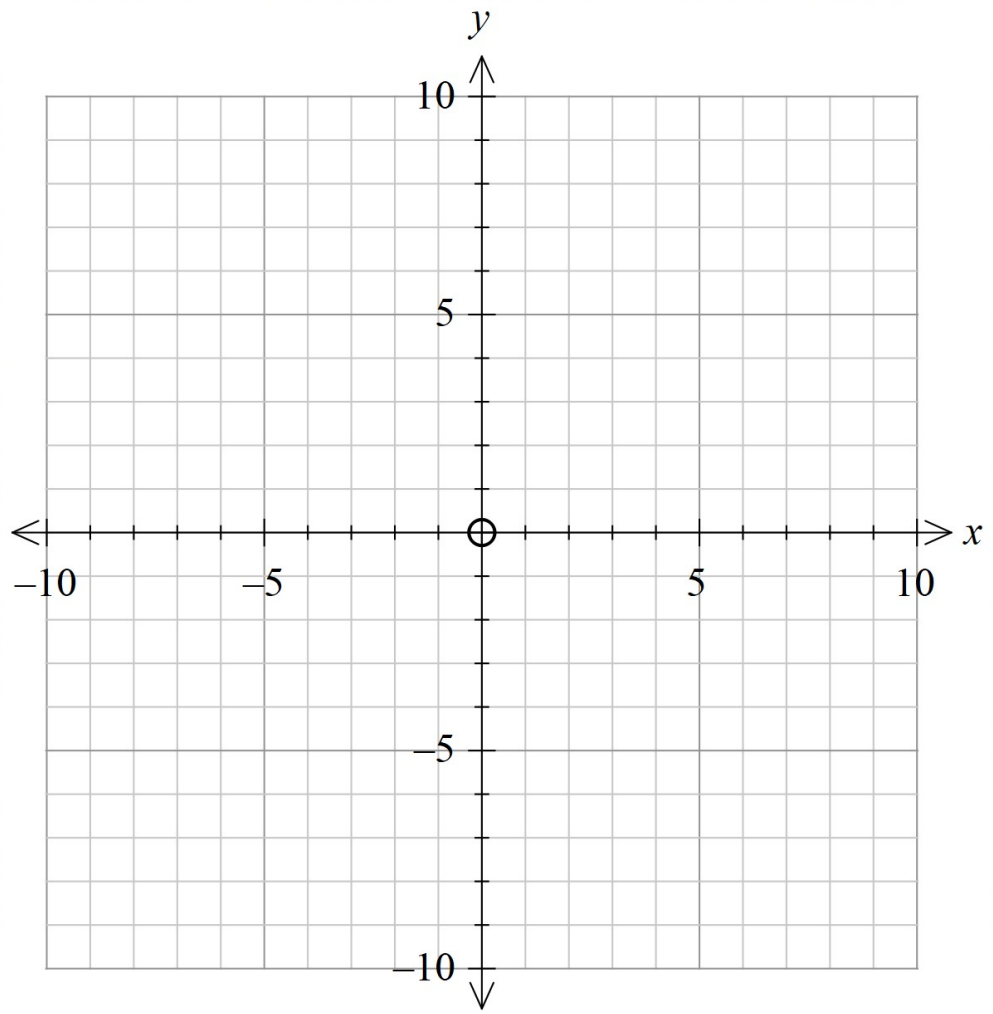
6.2 Given $y = 2x + 1$.

6.2.1. Complete the table below for the x-values shown. (3)

x	-3	-1	0	1	3
y					

6.2.2. Hence, write down three ordered pairs that satisfy the equation $y = 2x + 1$. (3)

6.2.3. Using the information from the table in 2.2.1, plot the ordered pairs and sketch the graph for $y = 2x + 1$ on the set of axes below. Label your coordinates. (2)



6.3 Given the pattern 2; 5; 9; 14; …. (1)

6.3.1 Write down the next three terms of the pattern

6.3.2 Determine the value of the 20^{th} term in the pattern. (2)

[15]

TOTAL: 60

5	3			7				
6			1	9	5			
	9	8					6	
8				6				3
4			8		3			1
7				2				6
	6					2	8	
			4	1	9			5
				8			7	9