GRADE 8 MATHEMATICS

Content for final exams

NOVEMBER 2026

[60 marks]	PAPER ONE	75 minutes

	TOPICS	CLASSROOM MATHEMATICS
Number, Operations & Relations [25 marks]	• Whole Numbers • Integers • Exponents • Fractions • Decimals • Ratio, Rate, Finance	Chapters: 1-3; 15;16
Functions & Algebra [35 marks]	• Functions/Graphs & Relationships • Algebraic Expressions • Number Patterns • Algebraic Equations	Chapters: 5-10; 22-24

[60 marks]	PAPER TWO	75 minutes

	TOPICS	CLASSROOM MATHEMATICS
Space & Shape Geometry [35 marks]	• Straight Line Geometry • Transformation Geometry	Chapters: 13; 25
Measurement [15 marks]	• Pythagoras, Area, Perimeter, Volume & Total Surface Area	Chapters: 12; 17-19
Data Handling [10 marks]	• Data Handling	Chapter: 20; 27

ADDITIONAL INFORMATION

- There are many practice questions in your **PYTHAGORAS** book.
- **No constructions** of geometric figures will be examined.
- All assessments are **weighted** according to the **following criteria:**
  - **Knowledge** (25% of the paper) - *"These require the basic skills, applying definitions, etc".*
  - **Routine Procedures** (45% of the paper) - *"These are similar to our classwork examples".*
  - **Complex Procedures** (20% of the paper) - *"These are more involved, longer question".*
  - **Problem Solving** (10%) - *"These require us to apply our skills in new ways".*

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 in the table below. One description may have multiple associated answers. (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 word/letter in the blank spaces.

	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 4,5 Robux per hour, per person that passes 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 were 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)

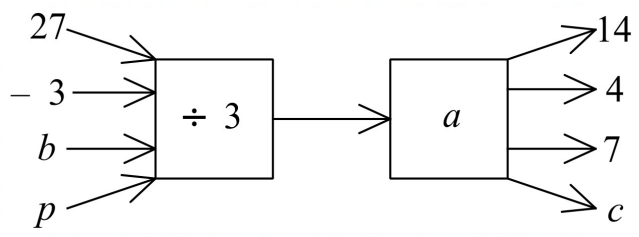
5.4 A player buys a set of items, the cost of which follows the sequence 5; 11; 17; …. (3)

How many items can they buy before they spend their 1000 Robux?

[11]

Question 6

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



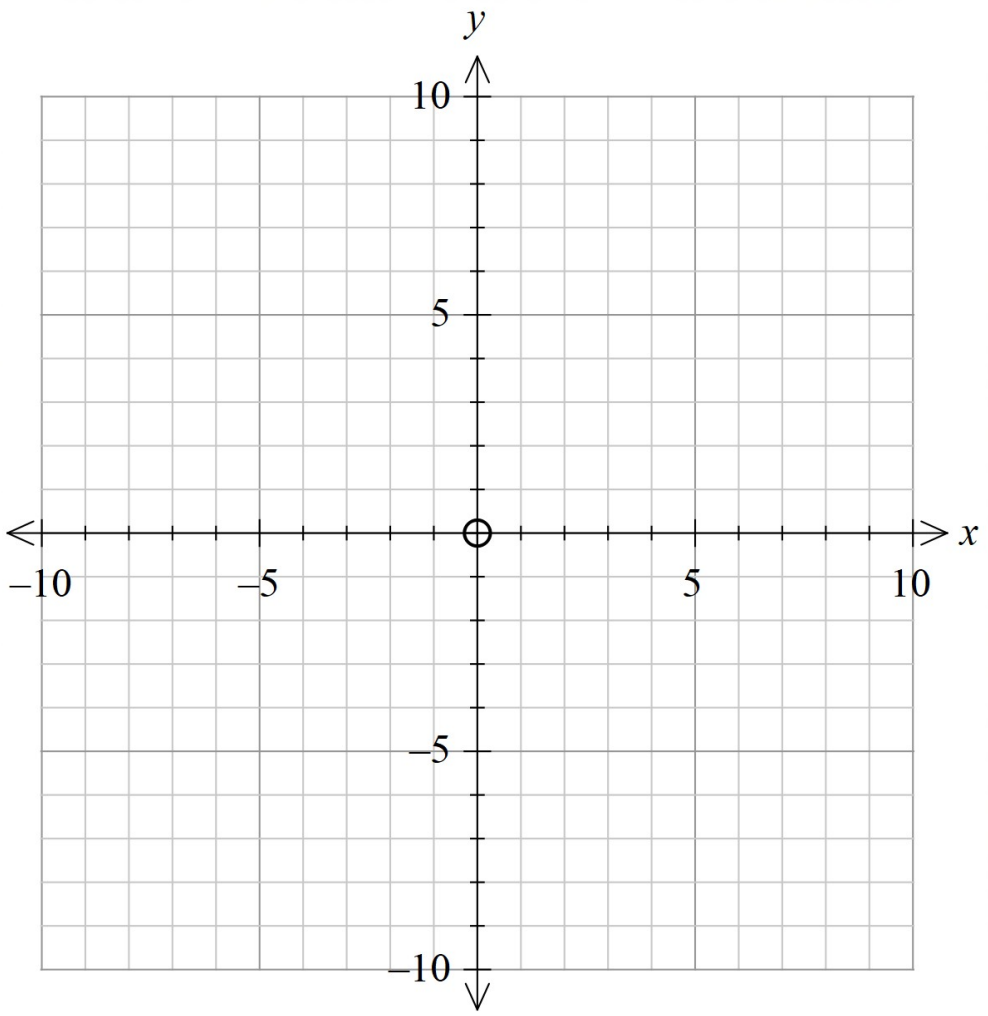
6.2 Given $y = 2x + 1$.

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 6.2.1 plot the ordered pairs and sketch the graph for $y = 2x + 1$ on the set of axes below. Label the 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

BERGVLIET HIGH SCHOOL

MATHEMATICS DEPARTMENT

NOVEMBER EXAMINATION

GRADE 8

MATHEMATICS PAPER 1
11 November 2024

MARKS: **75**
TIME: **90 MINUTES**
SET BY: **D. Viljoen**
MODERATOR : **D. Lekay**

This question paper consists of 5 questions and an answer sheet.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer QUESTION 1 and QUESTION 2 on the ANSWER SHEET. Staple the answer sheet to the FRONT of your other answers.
2. Clearly show ALL calculations, diagrams, graphs, etcetera that you have used in determining your answers.
3. Answers only will **not** necessarily be awarded full marks.
4. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
5. If necessary, round off answers to TWO decimal places, unless stated otherwise.
6. Diagrams are NOT necessarily drawn to scale.
7. Number the questions correctly according to the numbering system used in this question paper.
8. Write neatly and legibly.

Q1 [10]	**Q2** [6]	**Q3** [27]	**Q4** [11]	**Q5** [21]	**TOTAL [75]**

ANSWER SHEET

(Attach to the front of the rest of your answers)

NAME:_____ CLASS:_____

MATHS TEACHER (circle correct): Jo / Le / Vi / Wh / Eb / Si / Fg

QUESTION 1 (Circle correct):

1.1	A	B	C	D	**1.6**	A	B	C	D
1.2	A	B	C	D	**1.7**	A	B	C	D
1.3	A	B	C	D	**1.8**	A	B	C	D
1.4	A	B	C	D	**1.9**	A	B	C	D
1.5	A	B	C	D	**1.10**	A	B	C	D

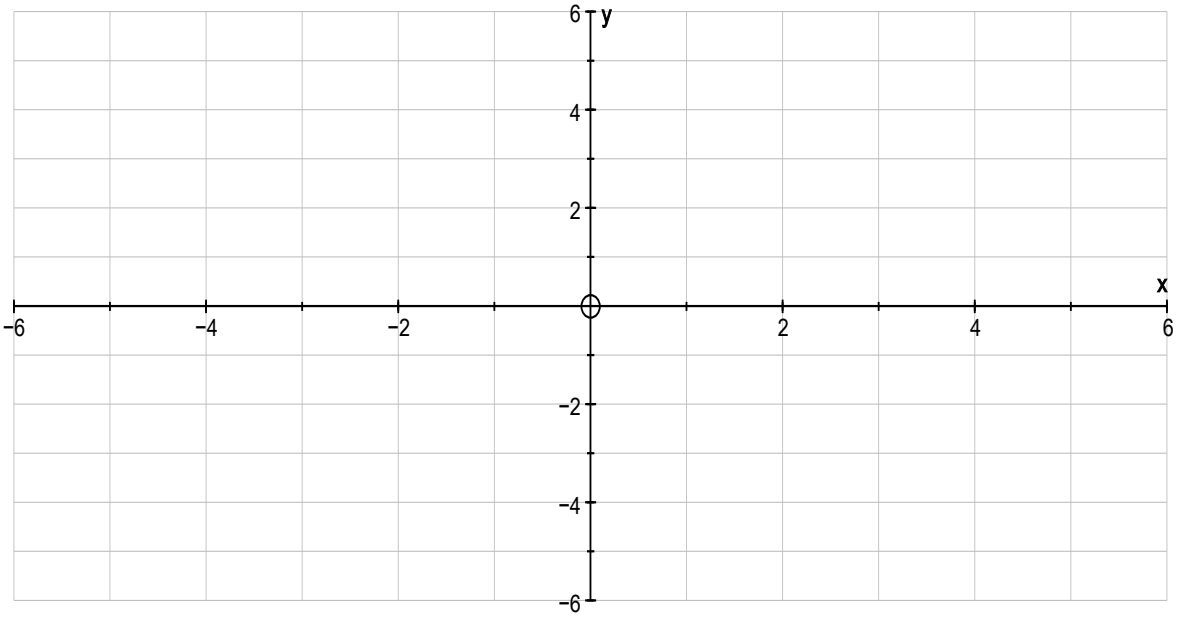
[10]

QUESTION 2 (Complete the table and graph below):

Complete the table, then join some of these points provided, to accurately draw the graph of:

$$y = 2x - 4$$

x	-2	0		2	
y			0		24



[6]

QUESTION 1: Multiple Choice

Answer the following questions on the answer sheet provided.

1.1. Consider the following list of numbers:

$$-4\ ;\ 2.5\ ;\ 7\ ;\ \sqrt{16}\ ;\ -\frac{5}{2}\ ;\ \pi$$

Which of the following options contains only **positive whole numbers**? (1)

A. $7\ ;\ \sqrt{16}$

B. $-4\ ;\ \pi$

C. $2.5\ ;\ 7$

D. $-\frac{5}{2}\ ;\ \pi$

1.2. From the list:

$$\sqrt{3}\ ;\ 3.141\ ;\ \frac{1}{2}\ ;\ 5\ ;\ -0.333$$

Identify the option that lists only **rational numbers**. (1)

A. $\frac{1}{2}\ ;\ 5\ ;\ -0.333$

B. $\sqrt{3}\ ;\ 3.141$

C. $\sqrt{3}\ ;\ \frac{1}{2}$

D. None of the above

1.3. Which of these sequences represents **only factors** of 48? (1)

A. $4\ ;\ 7\ ;\ 14\ ;\ 28$

B. $5\ ;\ 10\ ;\ 20\ ;\ 25$

C. $8\ ;\ 12\ ;\ 16\ ;\ 24$

D. $6\ ;\ 9\ ;\ 12\ ;\ 15$

1.4. Which ratio is **equivalent** to $\frac{18}{24}$? (1)

A. 24:18

B. 9:12

C. 4:3

D. 3:4

1.5. If a prize of R150 is shared between two people in the ratio $3:2$, how much does each person receive? (1)

A. R90 and R60

B. R100 and R50

C. R120 and R30

D. R70 and R80

1.6. Estimate the result of 3.849×1.27 by rounding each value to one decimal place. (1)

A. 4.9 B. 5.0

C. 5.1 D. 5.2

1.7. An item costs R45 before a 15% discount. What is the discounted price? (1)

A. R42.75 B. R38.25

C. R40.50 D. R39.00

1.8. In the expression $-3x^2 + 4x - 7$, what is the coefficient of x? (1)

A. 4 B. -3

C. 3 D. -7

1.9. In each option, x and y values are paired as coordinates. Which option below shows a relationship where the same x-value **does not** lead to different y-values? (1)

A. $(1,2)$; $(2,3)$; $(3,3)$; $(1,4)$ B. $(0,1)$; $(1,2)$; $(2,3)$; $(3,4)$

C. $(2,3)$; $(2,4)$; $(2,5)$; $(2,6)$ D. $(4,1)$; $(5,2)$; $(4,3)$; $(5,4)$

1.10. A rule says: "Double the starting number and then add 3 to get -11." What was the starting number? (1)

A. -4 B. -6

C. -5 D. -7

[10]

QUESTION 2: Functions and Graphs

Consider the following function:

$$y = 2x - 4$$

2.1.1. Complete the table provided on the ANSWER SHEET. (2)

2.1.2. Use the table to assist you in drawing the graph of this function on the Cartesian plane. Be sure to label the graph clearly and indicate the coordinates of all points of intersection with the axes (4)

[6]

The remaining questions are to be answered on the lined paper provided.

QUESTION 3: Numbers, Operations and Relations

3.1. Insert the correct symbol (<, >, or =) between the pairs of numbers below by writing down the correct statement on your answer paper:

3.1.1. $\frac{3}{4} \square \frac{9}{15}$ (1)

3.1.2. $-5{,}12 \square -2{,}15$ (1)

3.2. Consider the number 120.

3.2.1. Express this number as a product of primes (in **exponential form)**. Remember to show your steps when using the prime tree or ladder method. (3)

3.2.2. Using your response for QUESTION 3.2.1, determine the smallest value for k, such that $120 \times k$ is a perfect square. (2)

3.3. Evaluate the following expressions WITHOUT THE USE OF A CALCULATOR, by showing all your working:

3.3.1. $-5 + 3 \times (2^3 - 14)$ (4)

3.3.2. $\frac{2^0}{3} + \frac{14}{\sqrt{49}}$ (4)

3.4. A recipe for a fruit salad requires the following fresh ingredients:

- 2 cups of strawberries
- 3 cups of blueberries
- 1 cup of kiwi

3.4.1. What is the **ratio of strawberries** to the **total amount of fruit** in the salad? Express your answer in the simplest form. (2)

3.4.2. If the cost of purchasing these ingredients is in the ratio of 30:20:15, identify the most expensive ingredient per batch of fruit salad. (2)

3.5. A train travels at an average speed of 80 km/h.

3.5.1. How long will it take the train to travel a distance of 240 km? (1)

3.5.2. If the train needs to make a routine stop of 3 minutes for every 20 km traveled, while maintaining this average speed, calculate the total time for the trip of 240 km (including all of the stops). (3)

3.5.3. Express this increase in time taken for the trip as a percentage. (2)

3.6. A tap fills half a tank in 6 minutes. How long will it take **four taps** to fill the same tank? (2)

[27]

QUESTION 4: Algebraic Expressions

4.1. Simplify the following expressions:

4.1.1. $-4x+9y-x-2y$ (2)

4.1.2. $-4a^3 \times 3a^2b^4$ (2)

4.1.3. $\dfrac{(2x^4)^2}{2(x^2)^3}$ (4)

4.2. Subtract $a+2b$ from twice the value of $a-4b$. (3)

[11]

QUESTION 5: Algebraic Equations

5.1. Solve for x in the following equations:

5.1.1. $x+3=-10$ (1)

5.1.2. $2(4+3x)=20$ (3)

5.1.3. $8-3(x-7)=x+5$ (4)

5.2. Determine whether $x=-\dfrac{1}{2}$ is a solution to the equation $4x+1=2(x-1)+2$.

(Remember to show all steps in your response, without the use of a calculator) (3)

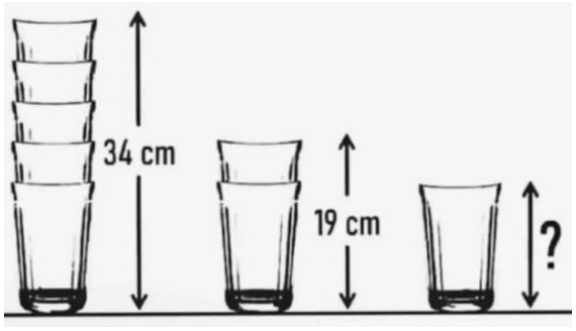
5.3. A bookstore is having a sale for new members. A book costs R150, but the store is offering a discount of R20 for each book purchased (including a once-off membership fee of R10).

5.3.1. What is the total sale price of three books, including the membership fee? (2)

5.3.2. If another new customer buys x books, write down a simplified algebraic equation which represents the total cost, y, of buying these books. (2)

5.3.3. Using your equation from QUESTION 5.3.2, solve for the number of books when the total amount spent is R790. (3)

5.4. By providing all reasons and calculations in your response, determine the height of a single cup (as shown below): (3)



[21]

TOTAL: 75 marks

BERGVLIET HIGH SCHOOL

MATHEMATICS DEPARTMENT

NOVEMBER EXAMINATION

GRADE 8

MATHEMATICS PAPER 1
9 November 2023

MARKS: 75
TIME: 1½ HOURS
SET BY: B. Jorge
MODERATOR : L. Storey

This question paper consists of 5 questions and an answer sheet.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Answer QUESTION 1 and 5.2 on the ANSWER SHEET. Staple the answer sheet to the FRONT of your other answers.
2. Clearly show ALL calculations, diagrams, graphs, etcetera that you have used in determining your answers.
3. Answers **only** will not necessarily be awarded full marks.
4. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
5. If necessary, round off answers to TWO decimal places, unless stated otherwise.
6. Diagrams are NOT necessarily drawn to scale.
7. Number the questions correctly according to the numbering system used in this question paper.
8. Write neatly and legibly.

QUESTION 1 Answer this question on the answer sheet provided.

Place an X over the correct answer on the answer sheet.

1.1 Study the list of numbers: -27 ; $1{,}16$; 2π ; $0{,}\dot{1}$; $\sqrt{64}$; $-2\frac{1}{3}$; 15

1.1.1 The integer numbers in the list are: (1)

A. -27 ; $1{,}16$; $0{,}\dot{1}$

B. -27 ; $\sqrt{64}$; 15

C. $1{,}16$; $0{,}\dot{1}$; $-2\frac{1}{3}$

D. 2π ; $\sqrt{64}$

1.1.2 All the irrational numbers in the list are: (1)

A. $1{,}16$; 2π ; $0{,}\dot{1}$; $-2\frac{1}{3}$

B. 2π

C. -27 ; $1{,}16$; $0{,}\dot{1}$; $-2\frac{1}{3}$; $\sqrt{64}$

D. None

1.2 Multiples of 15 are: (1)

A. 15; 30; 45;....

B. 3×5

C. 1; 3; 5; 15

D. $1\times3\times5\times15$

1.3 The simplest form of $\frac{13}{2}:1\frac{1}{3}$ is: (1)

A. $39:8$

B. $13:4$

C. $\frac{13}{2}:\frac{4}{3}$

D. $2:3$

1.4 225 divided into the ratio 10:5 is: (1)

A. $2250:1125$

B. $150:75$

C. $150:50$

D. $50:10$

1.5 $-(-1)^2 =$ (1)

A. -1

B. -2

C. 1

D. 2

1.6 $1,421 \times 1,360$ rounded to 2 decimal places is: (1)

A. $1,93$ B. $1,94$

C. $1,933$ D. $1,92$

1.7 R16 + 14% vat = (1)

A. $R16,14$ B. $R1614$

C. $R18,24$ D. $R30$

1.8 Calculate: $\sqrt{-1000}$ (1)

A. Non-Real B. -10

C. Undefined D. 10

1.9 $-4x^3$ in expanded form is: (1)

A. $-4x \times -4x \times -4x$ B. $-4 \times -4 \times -4 \times -x \times -x \times -x$

C. $-4 \times x \times x \times x$ D. $-1 \times -4 \times x \times x \times x$

1.10 Consider the following polynomial: $-4x - 5y^2 + 2x^2$ (1)

The coefficient of y^2 is:

A. $-4x - 5$ B. $-5y^2$

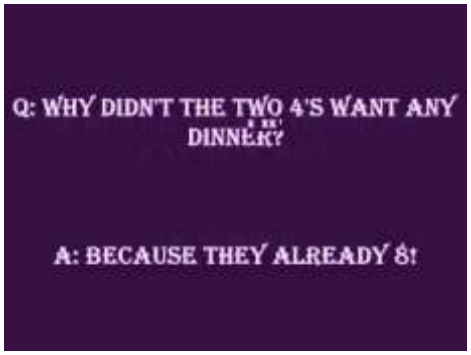
C. 3 terms D. -5

1.11 $2 \div \sqrt{2xy - 2xy}$ (1)

A. 2 B. 0

C. *undefined* D. $\frac{2}{xy}$

[12]



QUESTION 2

2.1 Arrange the following numbers from smallest to biggest: (2)

$$-\frac{1}{8}\ ;\ -5\ ;\ -1\frac{1}{2}$$

2.2

2.2.1 Write 308 and 56 as the product of prime factors. (3)
Show all your working.

2.2.2 Determine the highest common factor (HCF) of 110 and 56. (2)

2.3 Cheslin Kolbe (rugby) and Wayde van Niekerk (400m athletics) are sprinters that South Africans are proud of. Cheslin sprints 80m in 7,5 seconds and Wayde runs the 400m in 43,03 seconds.





2.3.1 Calculate both speeds in metres per second (m/s). (4)

2.3.2 Who runs the fastest? (1)

2.4 If the product of 3 primes numbers is 715, calculate their sum. Show your working. (2)

2.5 **Without a calculator** and showing ALL steps, calculate the following:

2.5.1 $7-3\left[-2\times3^2+3\left(4\div2\times\sqrt[3]{27}\right)\right]$ (3)

2.5.2 $-3\frac{1}{3}\div2\frac{1}{6}$ (3)

2.6

A	-3	8
	9	
	-5	

In a magic square the sum of the numbers in every horizontal row, vertical column and diagonal row are the same. (1)

Write down the value of **A** in this magic square.

[21]

QUESTION 3

3.1 Simplify:

3.1.1 $x^2(x^4)$ (1)

3.1.2 $(3xy^3)^2$ (2)

3.1.3 $\frac{-2x^4y^5}{12x^4y^3}$ (3)

3.1.4 $\sqrt[5]{-x^{15}}$ (2)

3.2 Write an algebraic equation for the following: (3)

Peter is 3 years older than Mia, the sum of their ages is three times Mia's age.

3.3 Simplify the following:

3.3.1 $2x+4x^2-x+2x^2$ (2)

3.3.2 $3(3x+2)-5x$ (2)

3.3.3 $2(x+3)+4(2x-1)$ (4)

3.3.4 $(-2x)^2+(-3x^2)$ (2)

[21]

QUESTION 4

4.1 Solve for x:

4.1.1 $3x-27=-2$ (2)

4.1.2 $2(x-1)-12=-2(3+x)$ (4)

4.1.3 $\frac{15+3x}{3}=-5$ (3)

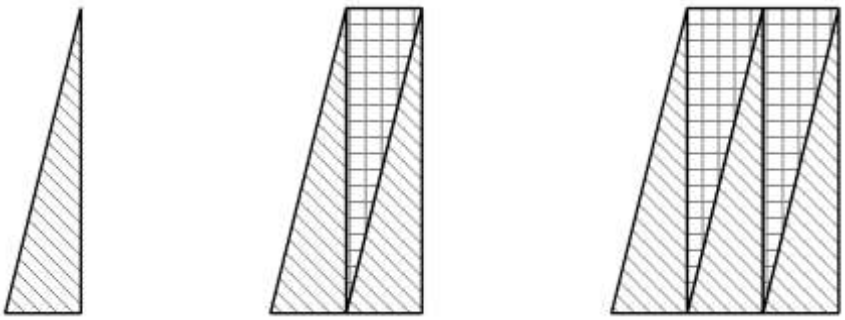
4.1.4 $5^x=5(25)$ (1)

4.2 If $12x-9$ is expressed in the form $a(4x+b)$, then determine the value of $a-b$. (2)
Show your working.

[12]

QUESTION 5

5.1 Triangular tiles are arranged in the following pattern:



5.1.1 Write down the number of tiles in the next pattern. (1)

5.1.2 Determine the general rule (T_n) of the number of tiles in each arrangement. (3)

5.1.3 Calculate the number of tiles in the 21st pattern, using your rule above. (2)

5.2 **Complete this question on the answer sheet.** (3)

[9]

ANSWER SHEET **Attach to the front of the rest of your answers.**

NAME:_____ CLASS:_____

MATHS TEACHER (circle correct): Jo / Ly / St / Vn / Eb / Sj / Wn / Gr

QUESTION 1

1.1.1	**A**	**B**	**C**	**D**
1.1.2	**A**	**B**	**C**	**D**
1.2	**A**	**B**	**C**	**D**
1.3	**A**	**B**	**C**	**D**
1.4	**A**	**B**	**C**	**D**
1.5	**A**	**B**	**C**	**D**
1.6	**A**	**B**	**C**	**D**
1.7	**A**	**B**	**C**	**D**
1.8	**A**	**B**	**C**	**D**
1.9	**A**	**B**	**C**	**D**
1.10	**A**	**B**	**C**	**D**
1.11	**A**	**B**	**C**	**D**

Mark the correct answer clearly with an **X**.

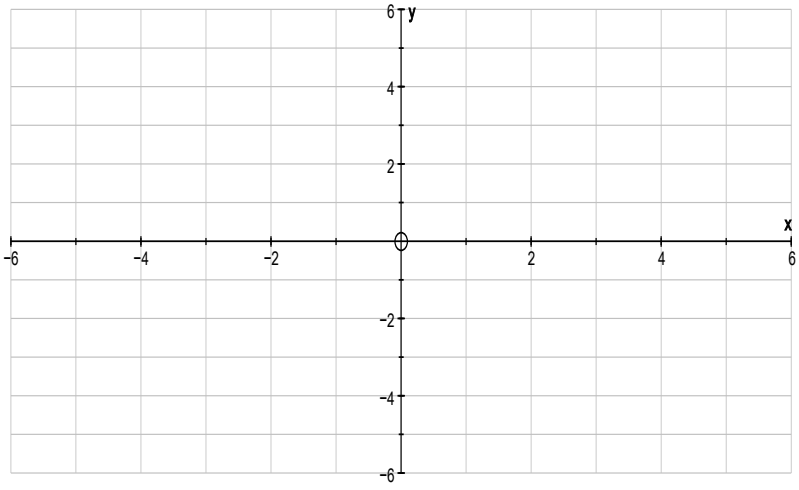
[12]

QUESTION 5.2

Complete the table, then plot each point on the axes provided. Join the points from left to right.

$y = -x + 3$

x	-2	0	2	4
y				



[3]

Have fun with this Sudoku grid, only if you have completed your exam AND checked your work.

NB: Every column AND row must have the numbers 1 – 9 (no repeats)

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

Grade 8	Bergvliet High School	November 2025
Time: 1 hour and 30 minutes	Mathematics	Marks: 60
Examiner: Mr D.Sinclair	**FINAL EXAM**	**Moderator: Mr S. Cooppan**

PAPER 2

Instructions:

- This Exam consists of **Six Questions**.
- **Answer all questions in the Answer book Provided.**
- **Do no write in the margins**
- Use black or blue ink only and no correctional fluid is permitted.
- Round off **ALL final answers** appropriately according to the given context, unless stated otherwise
- Please write neatly and legibly.
- This question paper consists of **7 pages** including the cover page
- You may use an approved scientific calculator (non – programmable and non – graphical) unless specified otherwise.

Useful Formulae:	$A = lb$	$A = s^2$	$A = \frac{1}{2}bh$	$A = \pi r^2$	$C = 2\pi r$	$V = lbh$
	$V = s^3$	$TSA = 6l^2$		$TSA = 2(lb + lh + bh)$		$TSA = bh + H(a + b + c)$
	$V = area\ of\ base \times height$					

Question 1

For each question four possible answers are given and only one is correct.

Select an answer and indicate your choice by writing the corresponding letter in the space provided.

1.1 The probability of rolling a 7 on a six-sided dice is: (1)

A) 1

B) 0

C) $\frac{1}{2}$

D) $\frac{1}{4}$

1.2 Complementary angles…..... (1)

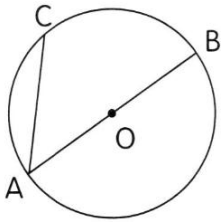
A) add ups to 180

B) are parallel

C) angles add up 90

D) are supplementary

1.3 Which of the following is the diameter? (1)



A) CA

B) BO

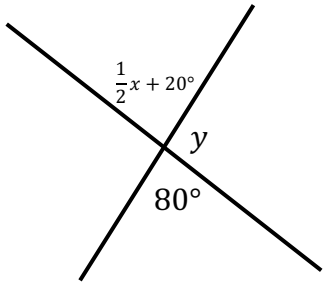
C) AO

D) AB

[3]

Question 2

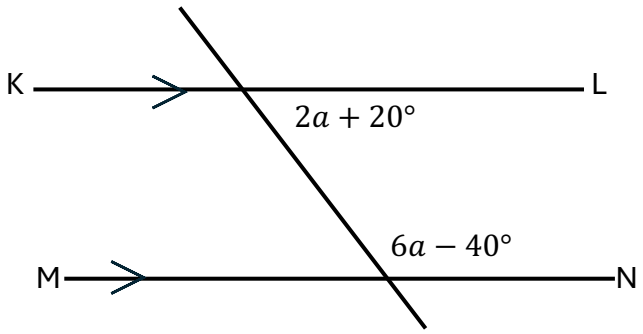
2.1 Given:



Determine the value of the unknown variables x and y , giving reasons for your answers.

(5)

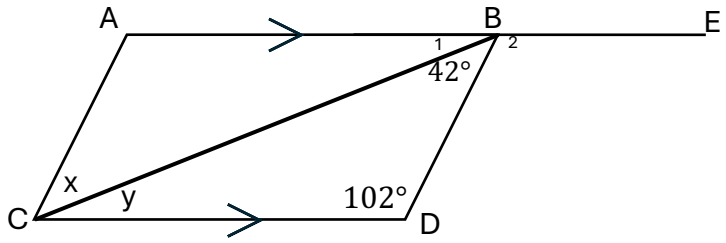
2.2 Study the figure below and answer the questions that follows.



Determine the value of a, giving a reason for your answer. (3)

2.3 Study the figure below and answer the questions that follow.

ABCD is a parallelogram with $C\hat{B}D = 42°$, $D = 102°$, $A\hat{C}B = x$ and $\hat{C}D = y$



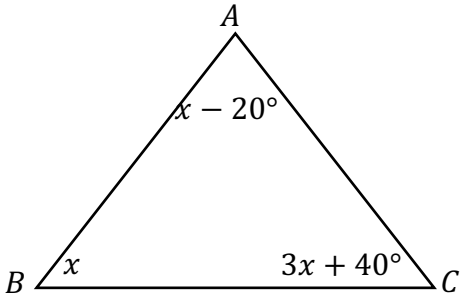
2.3.1 Determine the value of x with a reason. (2)

2.3.2 Calculate the value of B_2. Give a reason for your answer (2)

[12]

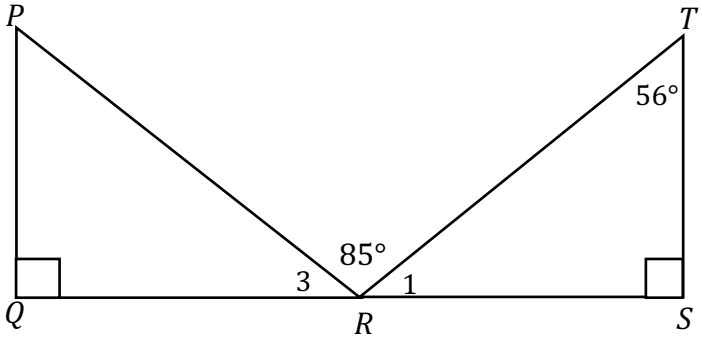
Question 3

3.1 Study the figure below and answer the question that follows.



Determine the value of x , giving a reason for your answer. (3)

3.2 In ΔPQR, $\widehat{Q} = 90°$. In ΔTRS , $\widehat{T} = 56°$ and $\widehat{S} = 90°$. $\hat{R}_2 = 85°$ and $R_3 = x$

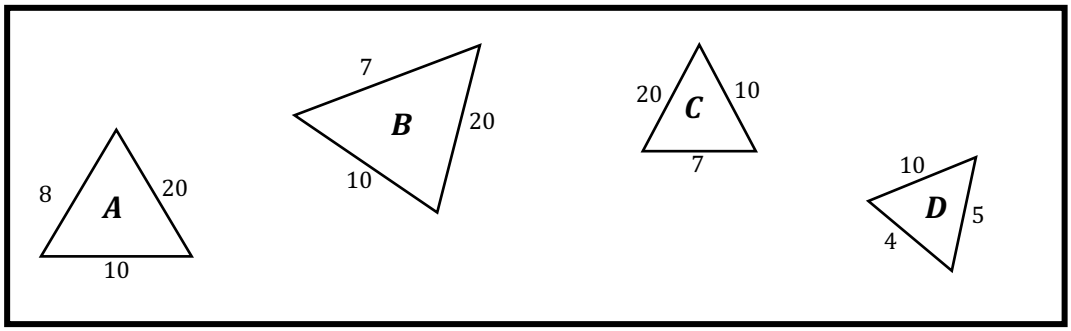


Calculate the calculate the value of x.

(4)

3.3 Identify which of the following triangles are congruent and similar.

Write your answer the space provided. Eg. Congruent : ΔF & ΔE

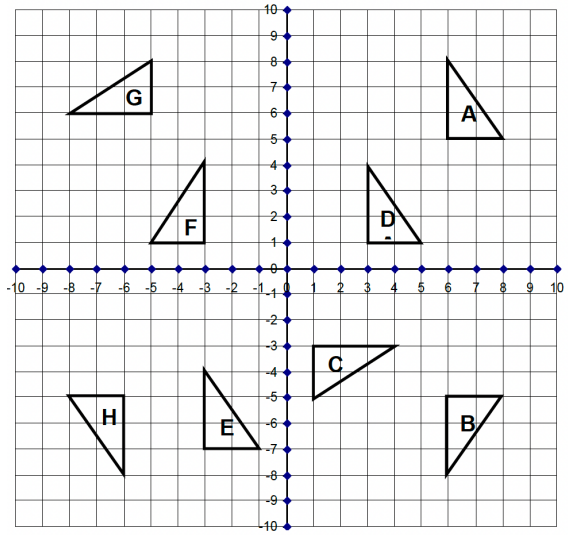


(2)

[9]

Question 4

Study the figure below and answer the questions that follow:



Use the graph to help fill in the table

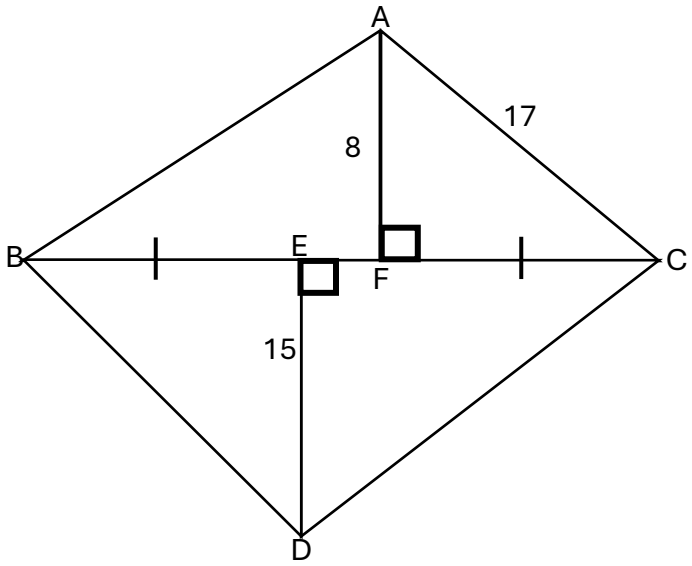
From	To	Describe the transformation
A	B	4.1
D	4.2	Translate 3 units right and 4 units up
F	4.3	Reflection over the y axis
E	D	4.4

[4]

Question 5

5.1 In $\Delta AFC, AF = 8cm$ and $AC = 17cm$.

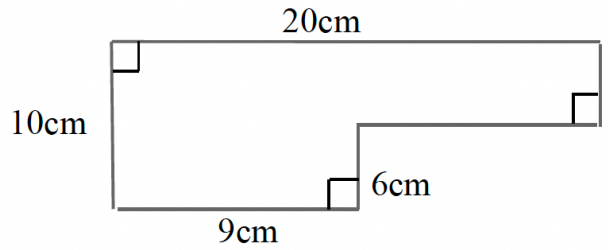
In $\Delta BDE, ED = 15cm$. $EF = \frac{1}{3}BE$ and $BE = FC$.



5.1.1 Calculate with reasons the length of FC. (3)

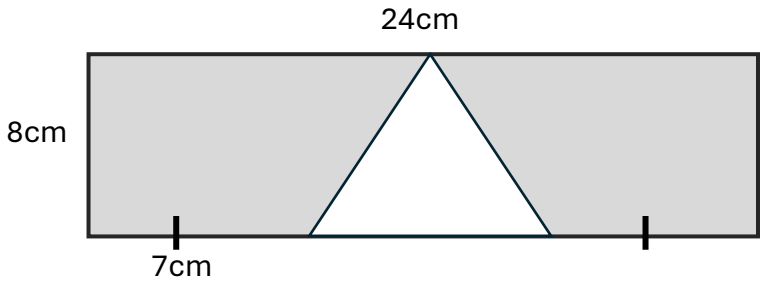
5.1.2 Determine the length of EF. Round your answer to nearest whole number (2)

5.2 Study the shape below and answer the questions that follow.



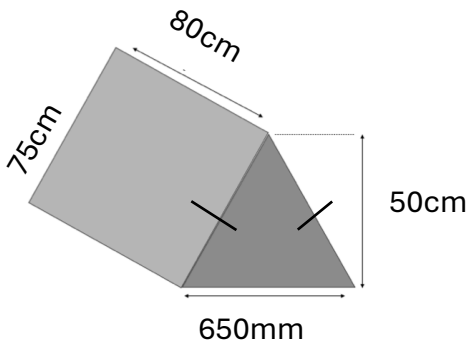
Calculate the perimeter of the shape. (2)

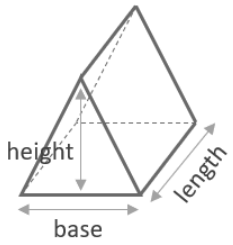
5.3 Calculate the area of the shaded region in the rectangle below.



(3)

5.4 Study the image below and answer the questions that follow.





5.4.1 Calculate the base of the triangular prism in cm. (2)

5.4.2 Determine the total surface area of the triangular prism. (4)

5.4.3 The prism is filled with sand. The price of sand is R0,20 per cm^3. Jeremy claims that he needs more than R27 000 to fill up the triangular container. Verify with calculations whether Jeremy is correct. (6)

[22]

Question 6

The following are the ages of learners who took part in the mathematics quiz at Sanlam.

17	13	15	16	13
15	13	13	14	14
13	16	17	14	14
12	12	13	13	17
17	14	15	13	12
10	18	12	11	15

6.1 Determine the mean of the data set. (Round to 1 Decimal Place) (2)

6.2 Calculate the mode of the data set (1)

6.3 Calculate the range of the data set (2)

6.4 Complete the table using the given class intervals on the diagram sheet provided. (3)

6.5 Determine the probability **(in percentage)** of someone that is 16 and older who participated in the mathematics quiz. (2)

[10]

Total Marks: [60]

Mathematics Exam | Grade 8

Paper 2 | Bergvliet High School | Examiner: S Whitehorn

Marks: 60 | 15 November 2024 | Moderator: D Lekay

Time: 75 Min

Name: _____

Teacher Eb Fr Jo Le Si Vi Wh (circle your teacher)

Class B E R G V L I (circle your class)

INSTRUCTIONS

Read the following instructions carefully before answering the questions.

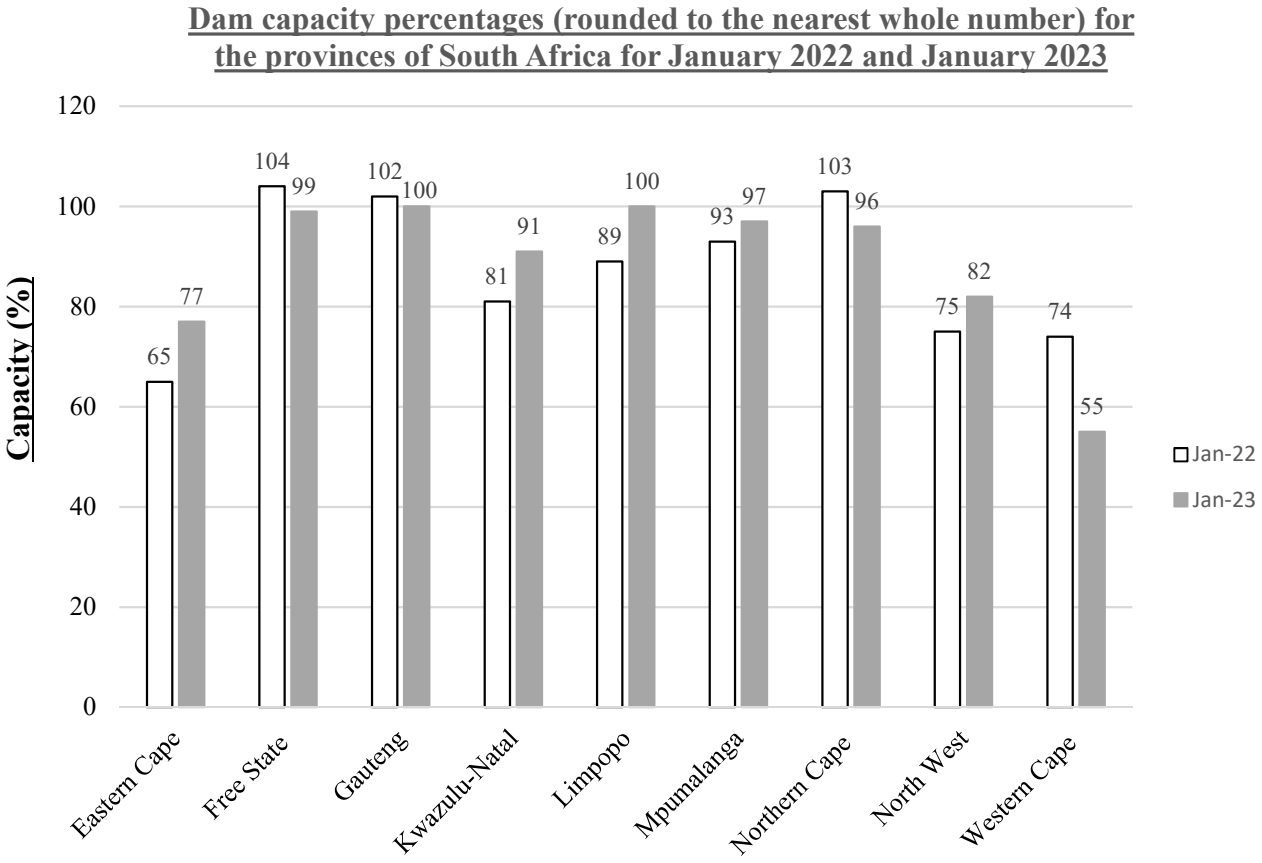
1. This paper consists of 10 pages and 7 questions.
2. Answer **ALL** the questions in this question paper.
3. Clearly show **ALL** calculations, diagrams et cetera that you have used in determining your answers.
4. Note that diagrams are not necessarily drawn to scale.
5. You MAY use an approved scientific calculator unless stated otherwise.
6. If necessary, round off answers to TWO decimal places, unless stated otherwise.
7. Write neatly and legibly in blue or black pen.

Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	TOTAL
12	**14**	**3**	**6**	**11**	**10**	**4**	**60**

Useful Formulae:	$A = lb$	$A = s^2$	$A = \frac{1}{2}bh$	$A = \pi r^2$	$C = 2\pi r$	$V = lbh$	$V = \frac{1}{2}bhd$
	$V = s^3$	$TSA = 6l^2$		$TSA = 2(lb + lh + bh)$		$TSA = bh + H(a + b + c)$	
	$V = area\ of\ base \times height$						

QUESTION 1

In a recent survey conducted by the Department of Water and Sanitation, the dam levels across South Africa were recorded. The graph below shows the dam capacity, as a percentage, in January 2022 and January 2023.



Adapted from: www.dws.gov.za

1.1. Which provinces dams were the fullest in January 2022? (1)

1.2. Determine the average dam capacity for South Africa in January 2023. (3)

1.3. Determine the range for the January 2022 data. (3)

1.4. Determine the median value of the data set for January 2023. (2)

1.5. Determine the percentage change for the Western Cape's dam levels from January 2022 to January 2023. (3)

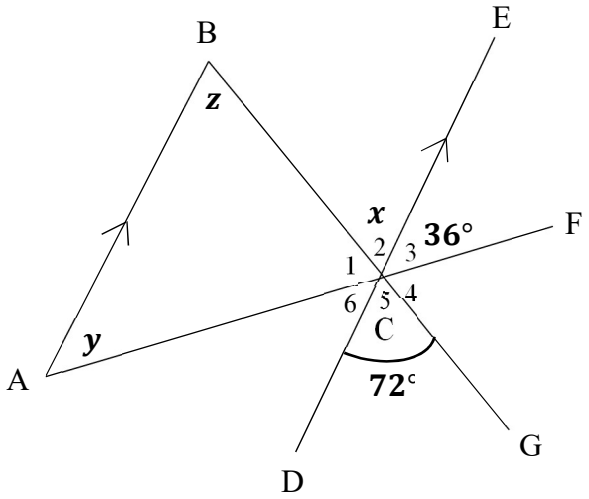
[12]

FOR QUESTIONS 2 - 4 YOU MUST GIVE REASONS FOR YOUR ANSWERS

QUESTION 2

Determine the sizes of the unknown angles, indicated with lowercase letters, in the following:

2.1 $AB \parallel DE$. ACF, DCF and BCG are straight lines. $\hat{C}_5 = 72°$ and $\hat{C}_3 = 36°$.

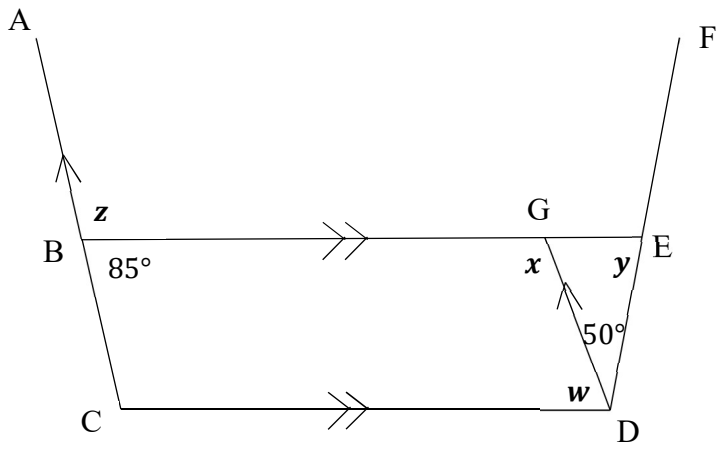


Determine the value of the following, in the order given below:

2.1.1. $x =$ (2)

2.1.2.	$y =$	(2)
2.1.3.	$z =$	(2)

2.2. $AC \parallel DG$ and $BE \parallel CD$. ABC and FED are straight lines. $G\hat{D}F = 50°$ and $C\hat{B}G = 85°$.



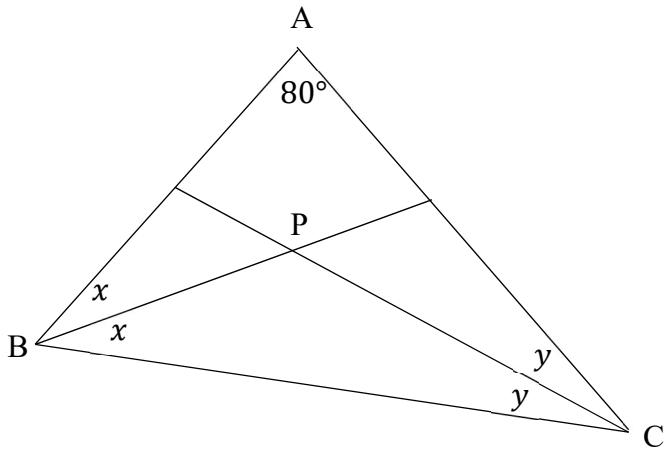
Determine the value of the following, in the order given below:

2.2.1.	$w =$	(2)
2.2.2.	$x =$	(2)
2.2.3.	$y =$	(2)
2.3.4.	$z =$	(2)

[14]

QUESTION 3

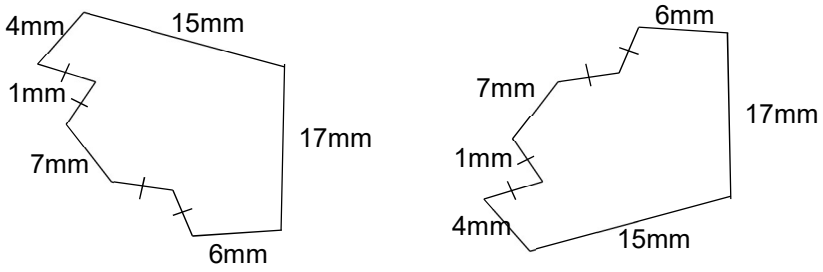
In $\Delta ABC, \hat{A} = 80°$ and the bisectors of angles B and C intersect at P inside the triangle. Determine the size of $B\hat{P}C$. **[3]**



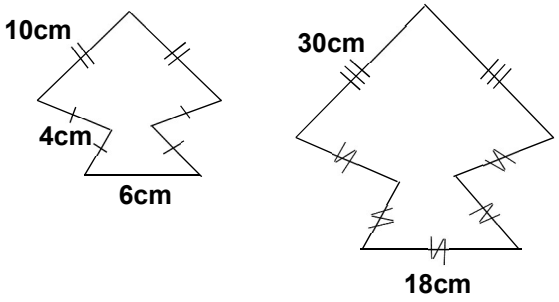
QUESTION 4

4.1 State whether the following images are congruent, similar or both, and give a reason for your answer.

4.1.1. (2)



4.1.2. (2)

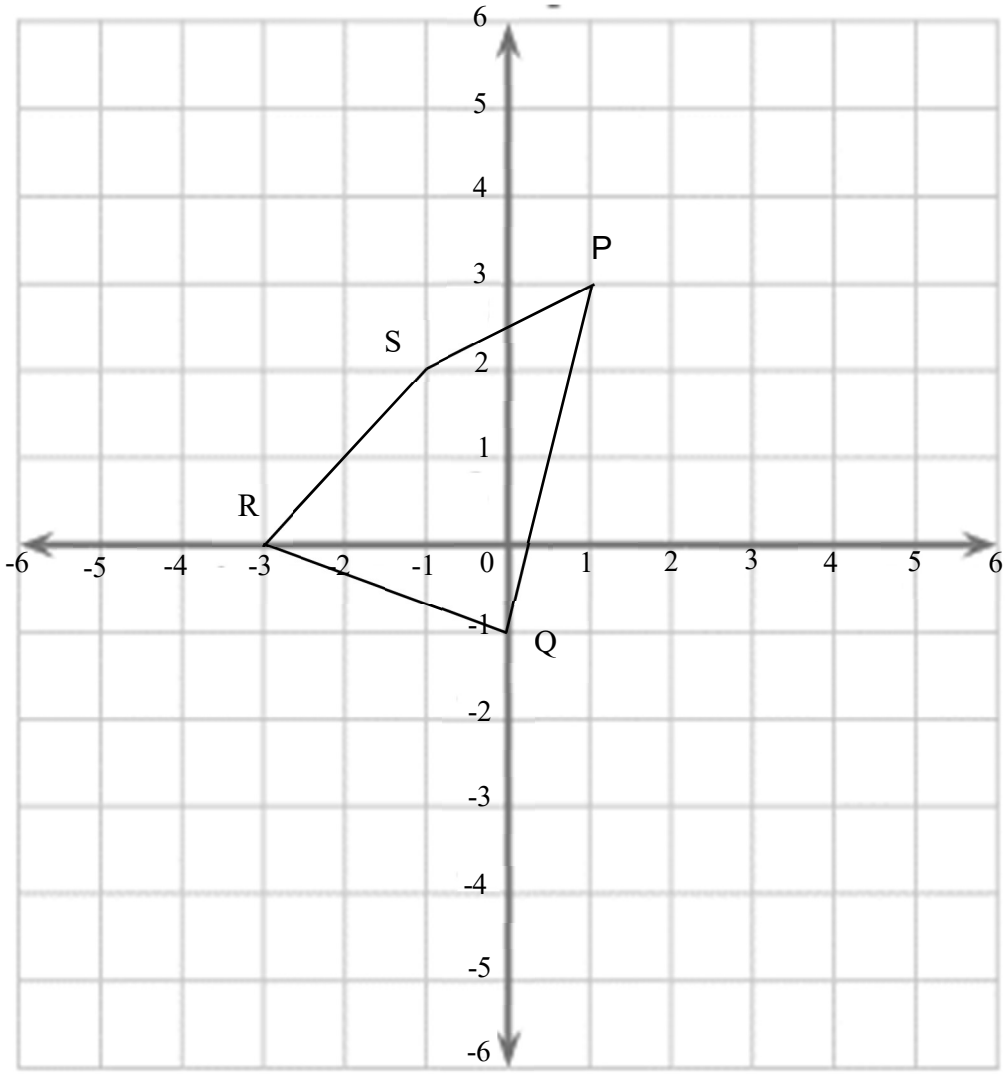


4.2 Using the larger image in Question 4.1.2., determine the perimeter of the polygon. (2)

[6]

QUESTION 5

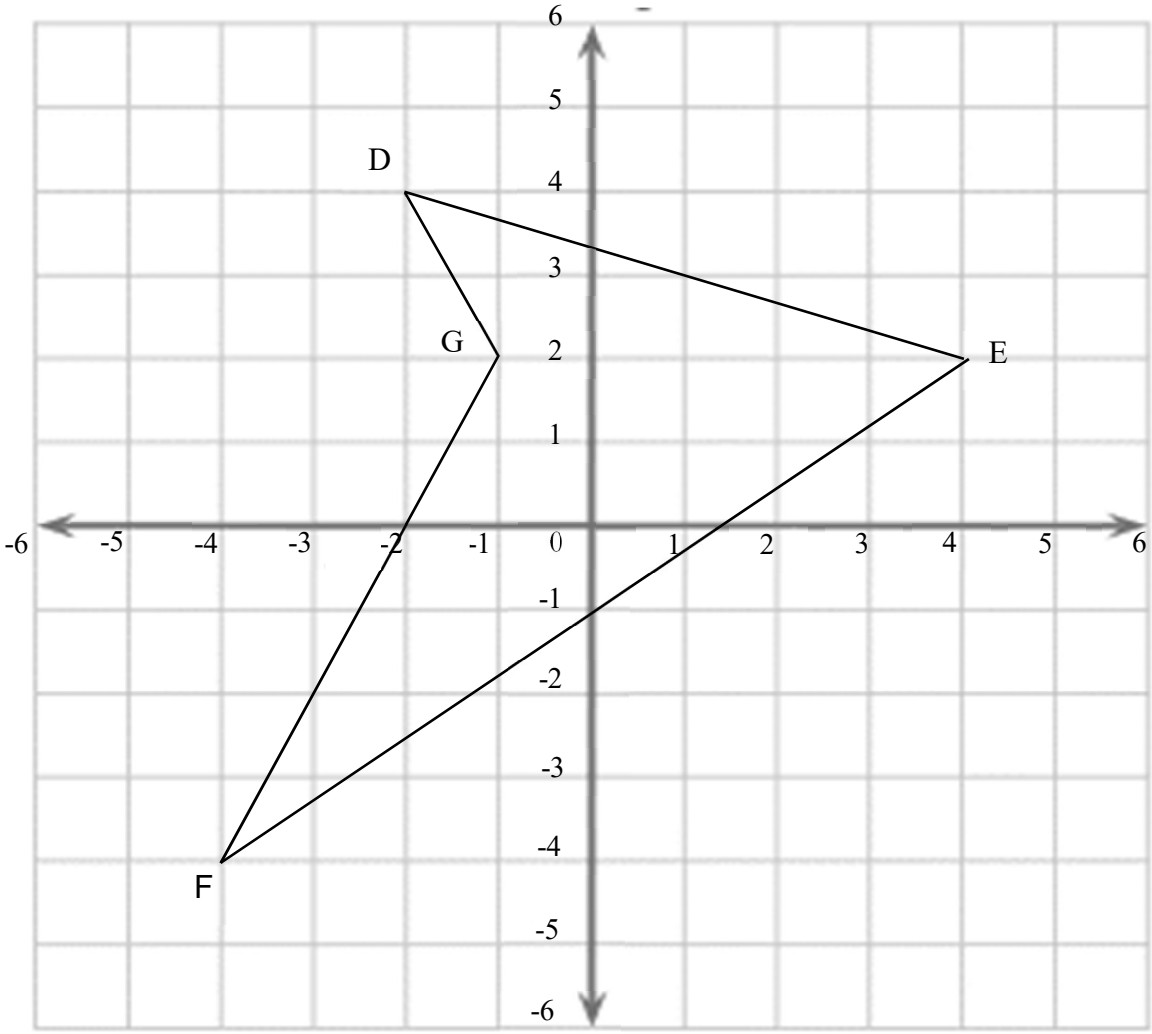
5.1 Given the polygon $PQRS$ on the Cartesian plane below:



5.1.1. Write down the coordinates of S. (2)

5.1.2. On the grid above, drawn the reflection of $PQRS$ about the x-axis, labelling all points with their coordinates. (4)

5.2 Given the polygon $DEFG$ below:



$DEFG$ is enlarged by a scale factor of $\frac{1}{2}$ about the origin.

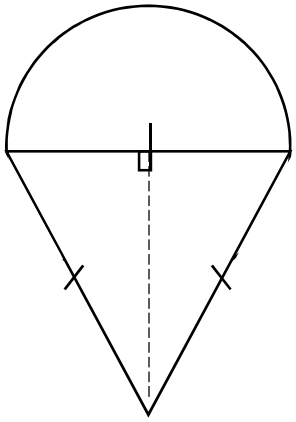
5.2.1. Write down the coordinates of the image $D'E'F'G'$. (4)

5.2.2. Draw the image of $D'E'F'G'$ on the axes above, labelling all coordinates. (1)

[11]

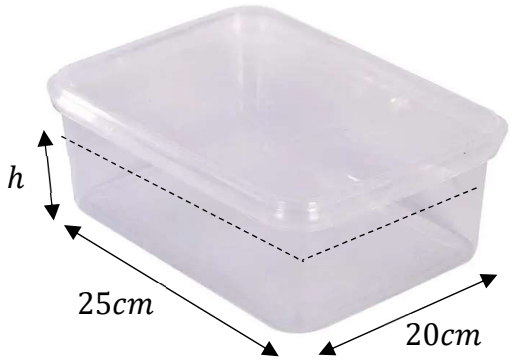
QUESTION 6

6.1 Cassidy is designing a new logo for her local ice-cream shop. The image below is her first draft of the signage to go outside the store. She has created the logo from an equilateral triangle, with side lengths of 12m, and a semi-circle where the diameter is equal to the side length of the triangle:



The ice-cream and cone will need to have a sealant painted on it to ensure that it is able to be outside. Determine the total area that needs to be painted. (6)

6.2 The ice-cream shop has ordered new containers for the sale of their ice-cream flavours. The design is shown below:



The tub can contain $3{,}5l$ of ice-cream. Determine the height to which the tub must be filled with ice-cream. (4)

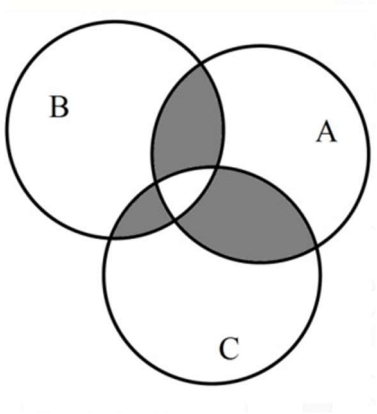
[10]

QUESTION 7

In the diagram below, each of the circles shown has an area of $120cm^2$. **[4]**

$\frac{1}{4}$ of the area of circle A is shades. $\frac{1}{5}$ of circle B's area is shaded. $\frac{1}{6}$ of the area of circle C is shaded.

Determine the sum of the shaded areas in cm^2.



TOTAL: 60 MARKS

Mathematics Exam | Grade 8

Paper 2 | Bergvliet High School | Examiner: S Whitehorn

Marks: 60 | 15 November 2023 | Moderator: D Viljoen

Time: 75 Min

Name: _____

Teacher Eb Gr Jo Ly Sj St Vn Wn (circle your teacher)

Class B E R G V L I T (circle your class)

INSTRUCTIONS

Read the following instructions carefully before answering the questions.

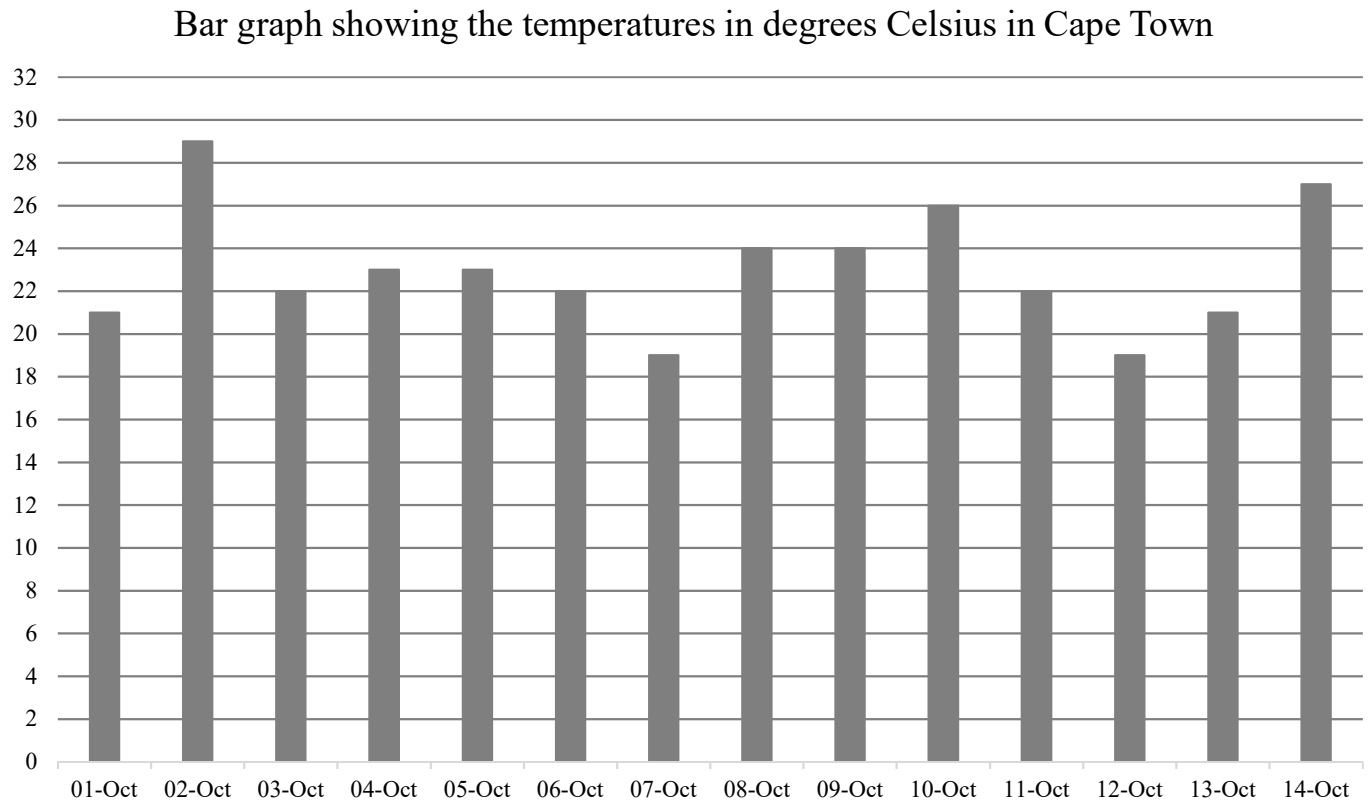
1. This paper consists of 10 pages and 4 questions.
2. Answer **ALL** the questions in this question paper.
3. Clearly show **ALL** calculations, diagrams et cetera that you have used in determining your answers.
4. Note that diagrams are not necessarily drawn to scale.
5. You MAY use an approved scientific calculator unless stated otherwise. If necessary, round off answers to TWO decimal places, unless stated otherwise.
6. Write neatly and legibly in blue or black pen.

Question	Mark	Learner Mark
1	9	
2	25	
3	9	
4	17	
Total	**60**	

Useful Formulae:	$A = lb$	$A = \frac{1}{2}bh$	$A = \pi r^2$	$C = 2\pi r$	$V = lbh$	$V = \frac{1}{2}bhd$

QUESTION 1

The following information shows the maximum temperatures (in $°C$) for Cape Town for the first two weeks of October 2023.



1.1. What was the maximum temperature for Cape Town in the first two weeks of October? (1)

1.2. Determine the modal temperature. (1)

1.3. Determine the mean temperature. (2)

1.4. Determine the median temperature. (3)

1.5. What was the range in temperatures for this 14-day period? (2)

_____

_____

_____

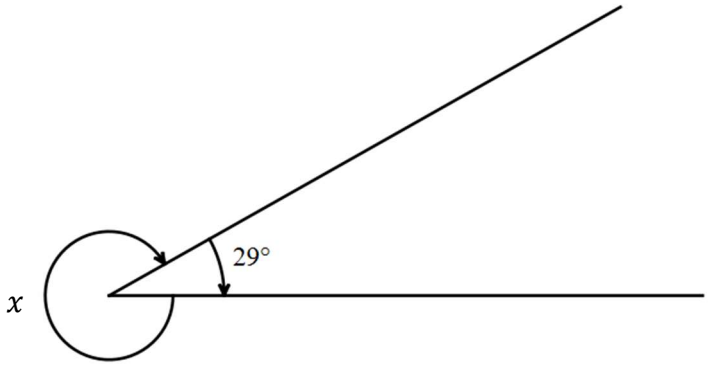
[9]

QUESTION 2

FOR ALL QUESTIONS, REMEMBER TO GIVE A REASON FOR YOUR ANSWER.

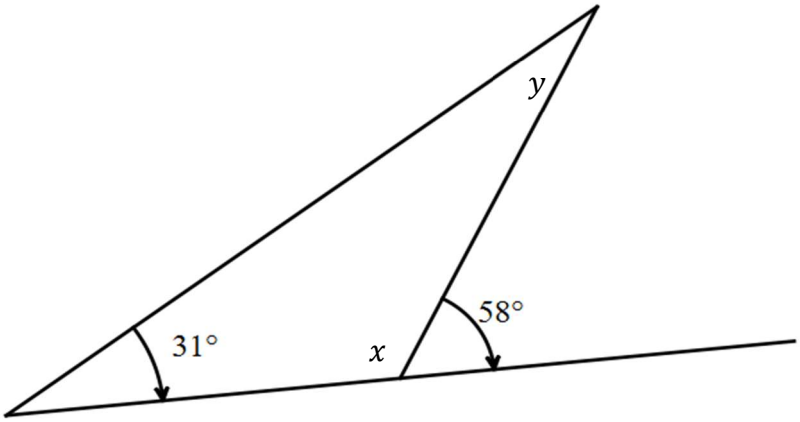
2.1. Determine the value of x, y and z in the following:

2.1.1. (2)



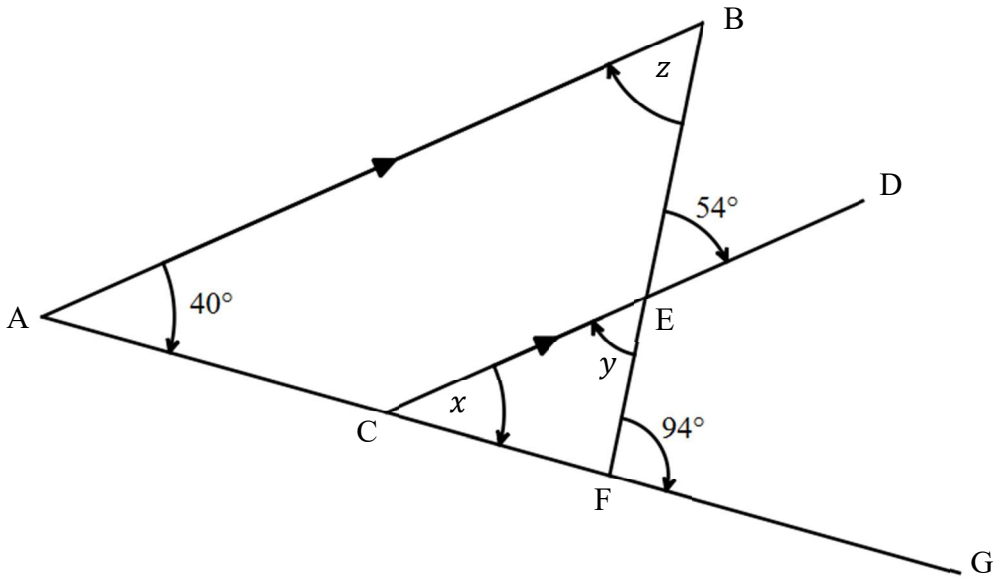
STATEMENT	REASON

2.1.2. (4)



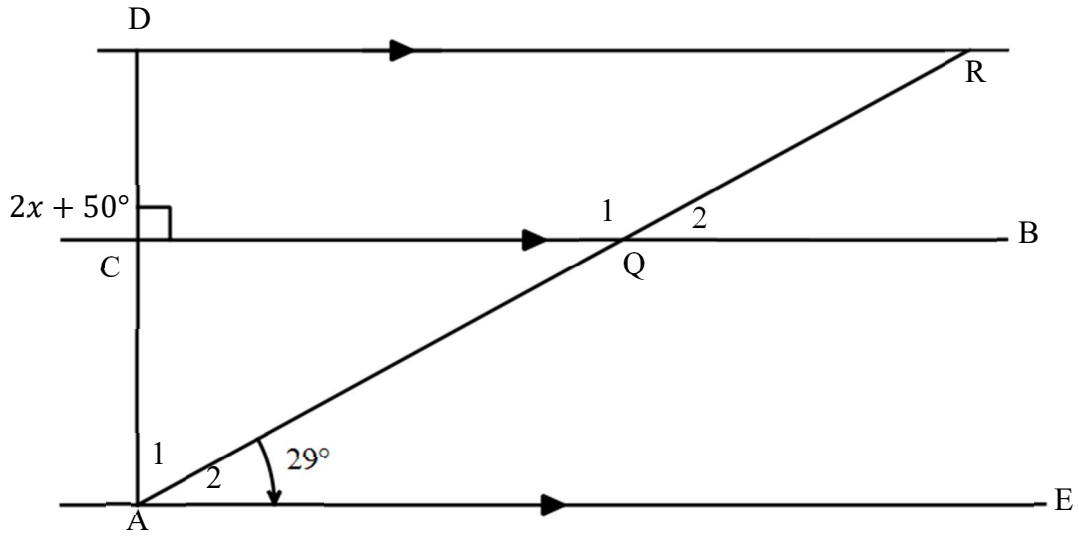
STATEMENT	REASON

2.1.3. (6)



STATEMENT	REASON

2.2. Consider the following:



2.2.1. Determine the value of x. (3)

STATEMENT	REASON

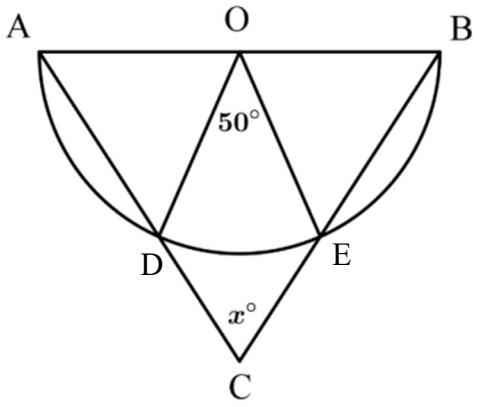
2.2.2. Determine the value of $A\hat{Q}B$. (2)

STATEMENT	REASON

2.2.3. In ΔACQ and ΔADR, state ***three*** pairs of corresponding angles that are equal to each other. (4)

STATEMENT	**REASON**

2.3. The diagram below shows isosceles triangle ABC with AC = BC. Side AB is the diameter of a semi-circle with centre O. $A\hat{O}D = B\hat{O}E$. Determine the value of x. (4)

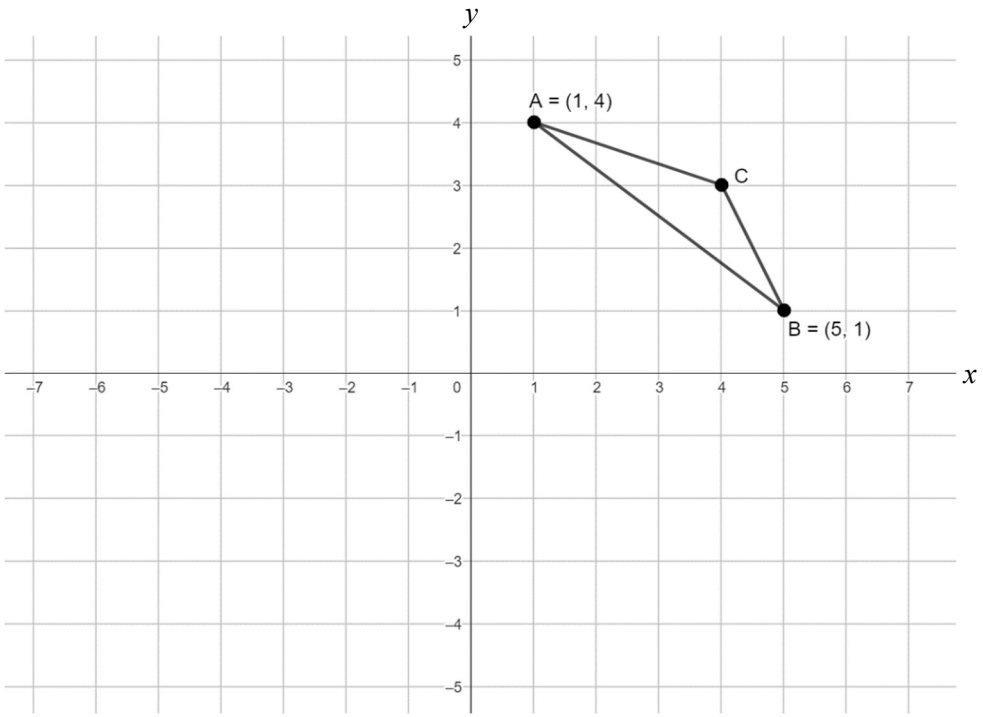


STATEMENT	**REASON**

[25]

QUESTION 3

3.1. Consider ΔABC plotted on the set of axes below:



3.1.1. ΔABC is translated 5 units left and 6 units down to form $\Delta A'B'C'$.
Plot the new image on the set of axes above, labelling all coordinates. (3)

3.1.2. Write down the coordinates of A'', the image of A when reflected about the *y*-axis. (2)

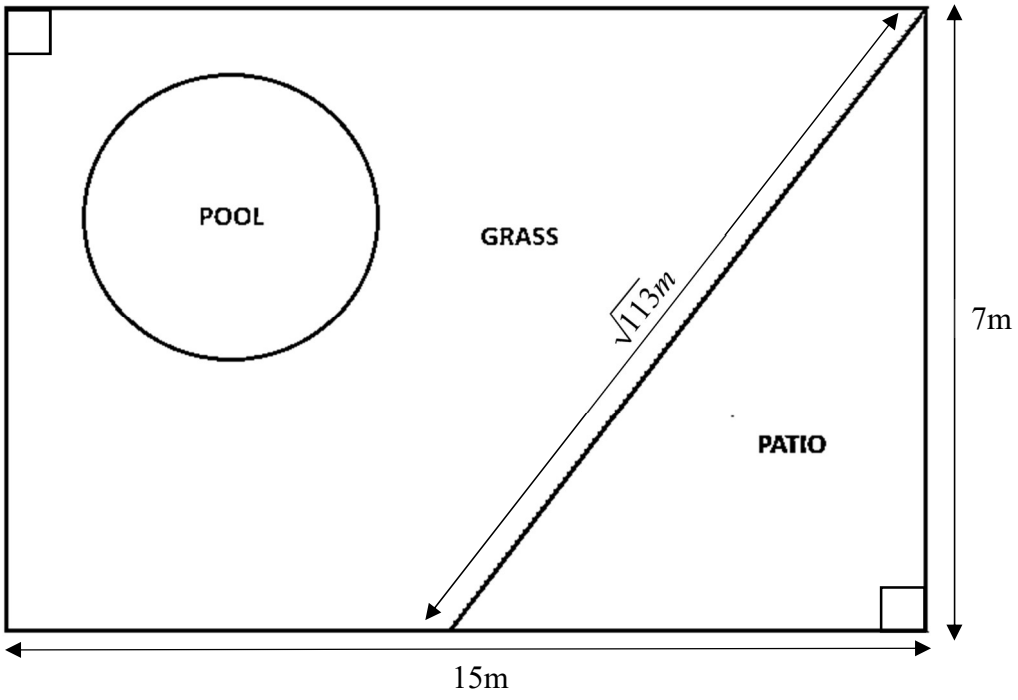
3.1.3. Are ΔABC and $\Delta A'B'C'$ considered to be similar, congruent or both? Give a reason for your answer. (2)

3.2. If the point $K(a;-3)$ is reflected over the *y*-axis and then translated 3 units up to form $K'(2;b)$, determine the values of *a* and *b*. (2)

[9]

QUESTION 4

Iman and Alex are helping Zoe redesign her garden, which is rectangular in shape. Their design is shown below. The pool has a radius of 2m:



4.1. A fence will be put around the pool. Determine the length of fencing needed. (2)

4.2. Determine the area of the patio. (4)

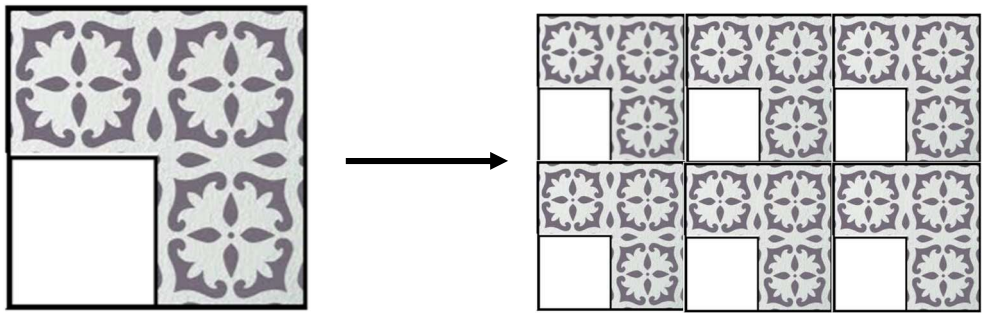
4.3. Determine the area of the garden that will be grass. (4)

4.4. Alex and Iman decide to surprise Zoe with a storage box for her braai tools. The design of the box is shown below:



Determine the total surface area of the storage container. (4)

4.5. Iman, Alex and Zoe have decided that the patio will be tiled. They will be using the following tiles. The tile is square with a smaller white square in the bottom left corner:



The perimeter of the patterned region is 24cm. What is the area of the whole tile? (3)

[17]