BERGVLIET HIGH SCHOOL

MATHEMATICS DEPARTMENT

NOVEMBER EXAM PAPER 2

GRADE 9
24 NOVEMBER
2025

MARKS: 75

TIME: 1 HOUR 30 MIN

SET BY: L. Roberts

MODERATOR: D. Viljoen

Name and Surname:_____

Teacher: Vi / Jo / Sc / El / Le / Li / Cp

QUESTION 1	QUESTION 2	QUESTION 3	QUESTION 4	TOTAL
16	**14**	**23**	**22**	**75**

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of 4 questions.
2. Clearly show ALL calculations, diagrams, graphs, etc. 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. Write neatly and legibly.

USEFUL FORMULAS

$C = 2\pi r$	$V = s^3$
$P = 2(l + b)$	$V = lbh$
$P = a + b + c$	$V = \pi r^2 h$
$A = s^2$	$TSA = s^2 + 2h.b$
$A = \frac{1}{2}bh$	$TSA = 2lb + 2lh + 2bh$
$A = lb$	$TSA = 2\pi r^2 + 2\pi rh$
$A = bh$	$TSA = 2\left(\frac{1}{2}bh\right) + ad + bd + cd$
$A = \pi r^2$	

QUESTION 1 : **Probability and data handling**

1.1 A dice is thrown 24 times, study the results below before answering the questions that follow:

3	2	3	1	3	1	3	5	3	4
5	3	1	2	6	2	3	4	4	2
2	6	1	5						

1.1.1 Complete the frequency and relative frequency table for the results above (3)

Number on dice	Tally	Frequency
1		
2		
3		
4		
5		
6		
Total		

1.1.2 What is the probability of rolling a 3? (2)

1.1.3 What is the relative frequency of rolling an odd number? (3)

1.2 Grade 9L wrote an informal math test. The following results were recorded of 10 learners in the class:

Learner number	Math Mark (%)	Learner number	Math Mark (%)
1	12%	6	90%
2	82%	7	27%
3	36%	8	55%
4	55%	9	60%
5	78%	10	86%

1.2.1 Calculate the mean mark (3)

1.2.2 Calculate the range of the math marks (1)

1.2.3 Identify the mode (1)

1.2.4 Determine the median mark (3)

[16]

QUESTION 2 : **Transformation geometry**

2.1 Point A (2;3) is reflected in the x-axis, give the co-ordinates of A' (2)

2.2 Point B (-4;2) is reflection about the line $y = x$, give the co-ordinates of B' (2)

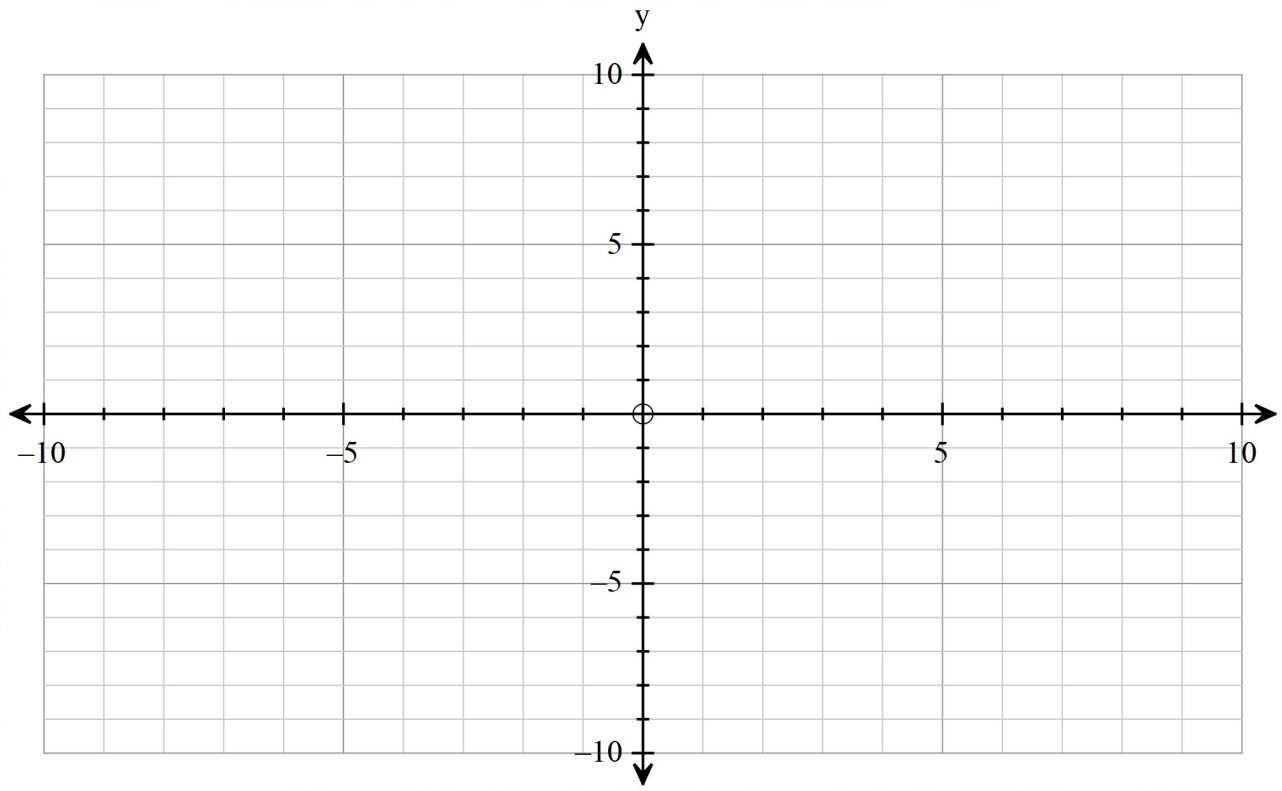
2.3 Plot and label the following points on the graph provided below. (3)

ΔCDE has points C(0;2), D(-2;0) and E(2;0) and is enlarged by a scale factor of 2. Label and plot the co-ordinates of ΔCDE and the enlarged triangle ΔC'D'E'

2.3.1 Describe the rule for the following transformation: $(x; y) \rightarrow (2x: 2y)$ (2)

2.4 Calculate the length of DE (2)

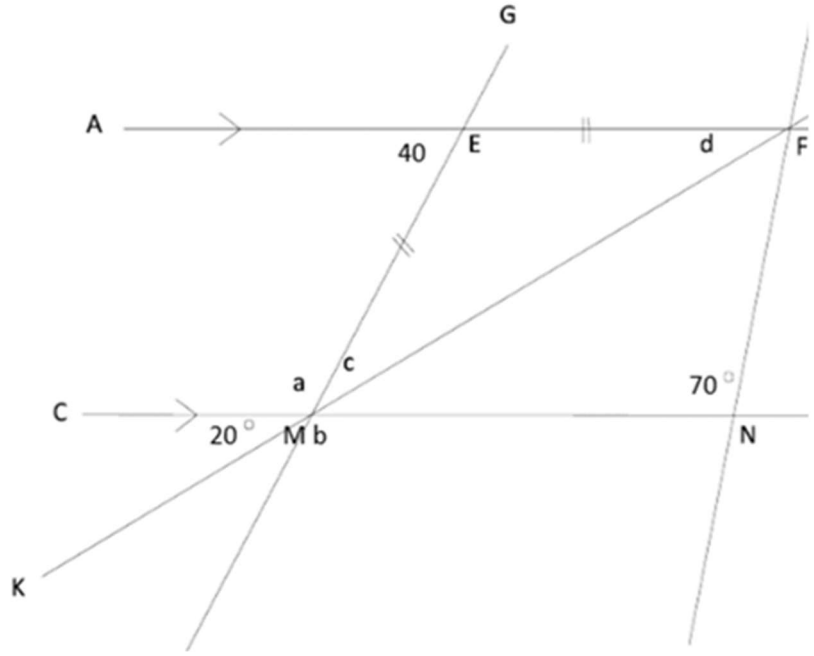
2.5 Calculate the area of ΔCDE (3)



[14]

<u>QUESTION 3</u> : **Straight Line Geometry**

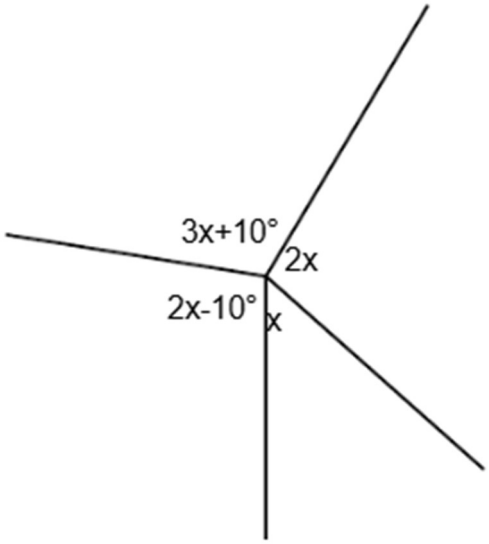
3.1 Study the diagram below and find the values of a, b, c and d (in this order) with reasons.



(8)

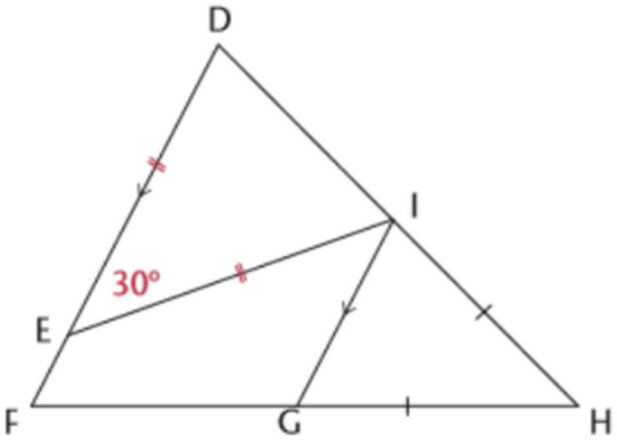
Statement	**Reason**

3.2 Solve for x in the diagram below by setting up an equation and solving it (4)



Statement	**Reason**

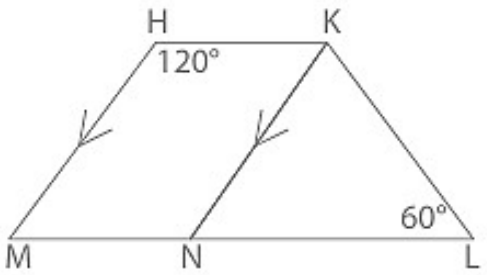
3.3 In the diagram DEI = 30º, DE = EI, DF ‖ IG, and GH = IH. Determine with reasons, the size of H.



(5)

Statement	Reason

3.4 HKLM is a trapezium with H = 120˚ and L = 60˚. A line KN is drawn so that it is parallel to HM. Prove that ▲KNL is an equilateral triangle.



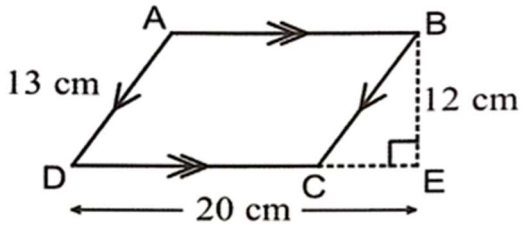
(6)

Statement	Reason

[23]

QUESTION 4 : **Pythagoras, Area, Perimeter and Total Surface Area**

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



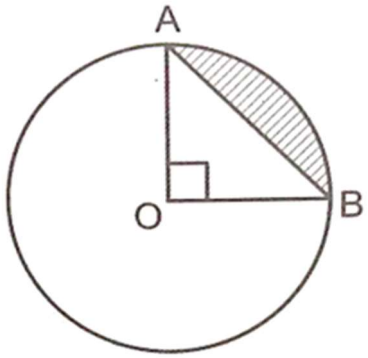
4.1.1 What type of quadrilateral ABCD? (1)

4.1.2 Name two pairs of parallel sides in the figure. (2)

4.1.3 What type of quadrilateral is ABED? (2)

4.1.4 Calculate the area of ABCD (5)

4.2 The sketch shows a circle with centre O. △ AOB is a right-angled triangle inside the circle. The circumference of the circle is 157,08 cm.

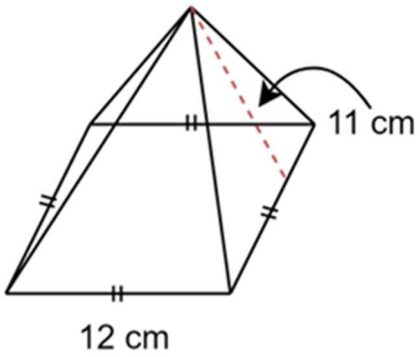


Calculate the following, correct to one decimal figure where necessary.

4.2.1 Show that the radius of the circle is 25 units (3)

4.2.2 The area of the shaded part (5)

4.3 Calculate the total surface area of the figure below, with a square base.



(4)

[22]

TOTAL: 75