

MATHEMATICS TEST

GRADE 9 · TERM 3 · 2026

Geometry of 2D Shapes · Data Handling · Probability

TOTAL: 75 MARKS

DURATION: 1½ HOURS

EXAMINER: MR SIMONS

Name:		Surname:	
Grade / Class:		Date:	

INSTRUCTIONS AND INFORMATION

- This question paper consists of TWO sections:
SECTION A: 10 multiple-choice questions (10 marks)
SECTION B: 3 questions (65 marks)
- Answer ALL the questions.
- Answer SECTION A by writing only the LETTER (A–D) of the correct answer next to the question number, for example 1.1 D.
- Show ALL your working in SECTION B. Answers only will not necessarily be awarded full marks.
- A non-programmable, non-graphical calculator may be used.
- Diagrams are NOT drawn to scale.
- Give reasons for all geometric statements where they are asked for.
- Write neatly and legibly.

SECTION A: MULTIPLE-CHOICE QUESTIONS [10 MARKS]

Write down only the letter of the correct answer.

QUESTION 1

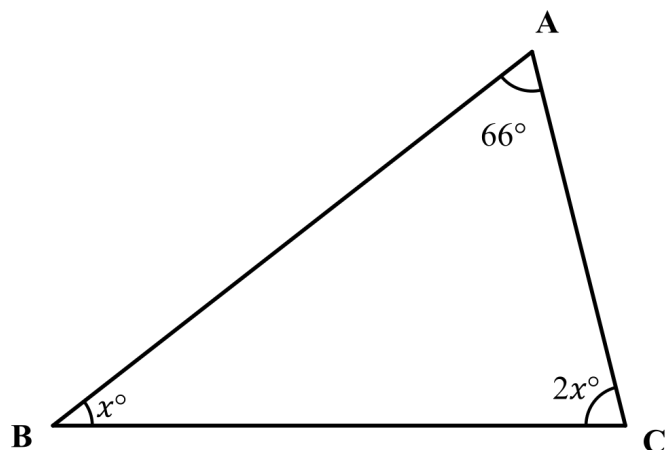
- 1.1 A triangle with all THREE sides of different length is called ... (1)
- A an equilateral triangle
B an isosceles triangle
C a scalene triangle
D a right-angled triangle
- 1.2 A quadrilateral with exactly ONE pair of parallel sides is a ... (1)
- A parallelogram
B trapezium
C rhombus
D square
- 1.3 A kite has ... (1)
- A two pairs of adjacent sides equal
B all four sides equal
C both pairs of opposite sides parallel
D four right angles
- 1.4 The interior angles of any quadrilateral add up to ... (1)
- A 90°
B 180°
C 270°
D 360°

- 1.5 Which measure is MOST affected by one very large value in a data set? (1)
- A the mean
 - B the median
 - C the mode
 - D the range
- 1.6 The number of learners in each class is an example of ... (1)
- A continuous data
 - B categorical data
 - C discrete data
 - D grouped data
- 1.7 Which graph is the BEST choice to show how a whole is divided into parts? (1)
- A a bar graph
 - B a pie chart
 - C a broken-line graph
 - D a histogram
- 1.8 The difference between the highest and the lowest value in a data set is the ... (1)
- A mean
 - B median
 - C mode
 - D range
- 1.9 An event that is CERTAIN to happen has a probability of ... (1)
- A 0
 - B $\frac{1}{2}$
 - C 1
 - D 100
- 1.10 The probability of an IMPOSSIBLE event is ... (1)
- A 0
 - B $\frac{1}{2}$
 - C 1
 - D -1

SECTION B [65 MARKS]

QUESTION 2: GEOMETRY OF 2D SHAPES [30]

2.1 In the diagram below, $\triangle ABC$ is drawn with $\hat{A} = 66^\circ$, $\hat{B} = x^\circ$ and $\hat{C} = 2x^\circ$.



2.1.1 Calculate the value of x .

(3)

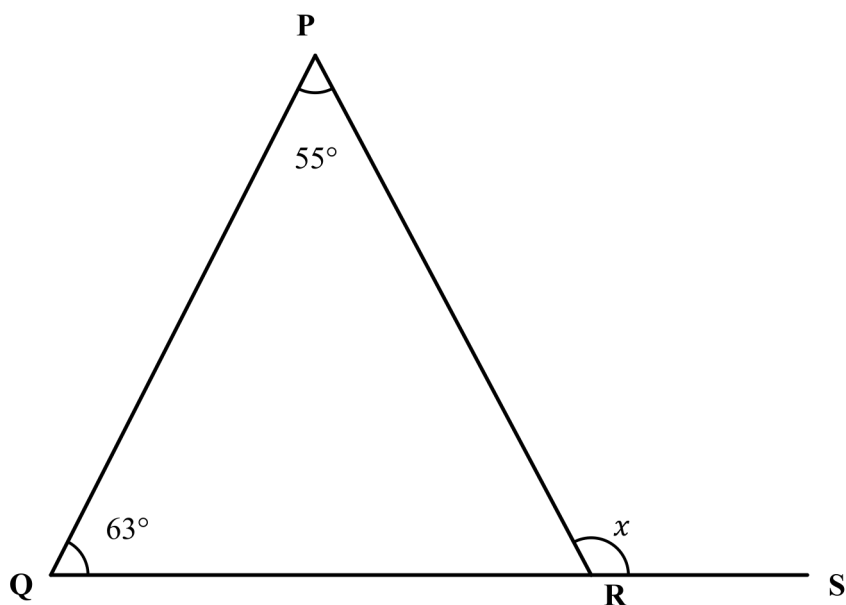
2.1.2 Hence, write down the size of $\hat{B}$ and the size of $\hat{C}$.

(2)

2.1.3 Classify $\triangle ABC$ according to its ANGLES. Give a reason for your answer.

(2)

2.2 In the diagram below, QR of $\triangle PQR$ is produced to S. $\hat{P} = 55^\circ$ and $\hat{Q} = 63^\circ$.



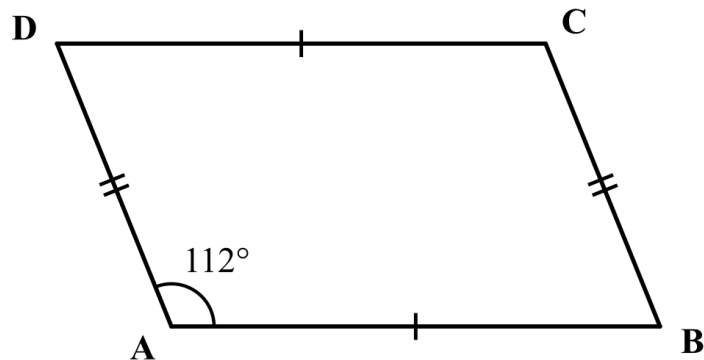
2.2.1 Calculate the value of x . Give a reason for your answer.

(3)

2.2.2 Hence, calculate the size of $\angle PRQ$. Give a reason for your answer.

(2)

2.3 In the diagram below, ABCD is a parallelogram with $\hat{A} = 112^\circ$.

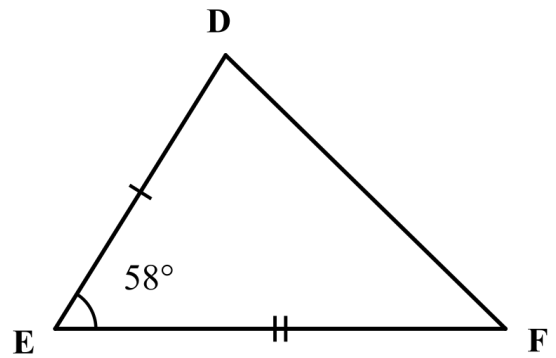
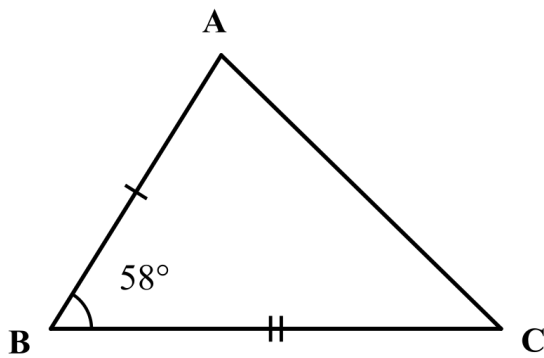


2.3.1 Write down the size of $\hat{C}$. Give a reason for your answer. (2)

2.3.2 Calculate the size of $\hat{B}$. Give a reason for your answer. (2)

2.3.3 State ONE property of the DIAGONALS of a parallelogram. (1)

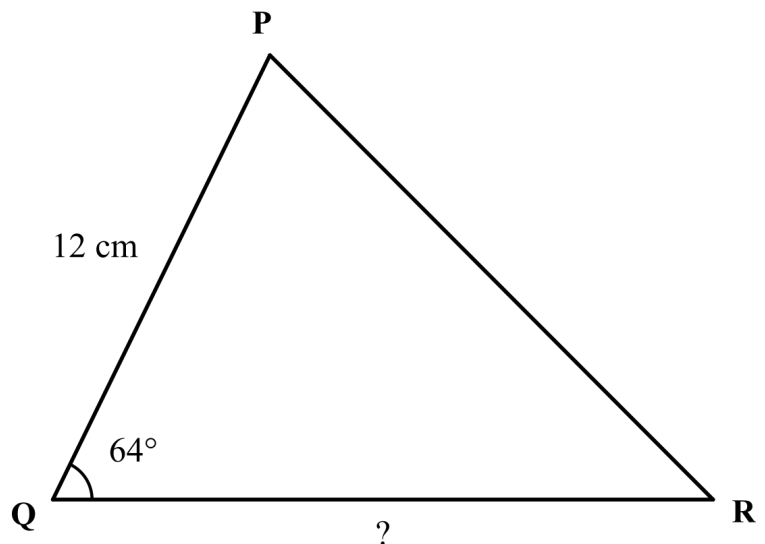
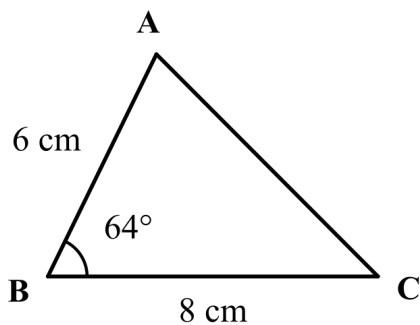
2.4 In the diagrams below, $AB = DE$, $BC = EF$ and $\hat{B} = \hat{E} = 58^\circ$.



2.4.1 Prove that $\triangle ABC \equiv \triangle DEF$. Give a reason for each statement. (4)

2.4.2 Hence, write down the size of $\hat{D}$ if $\hat{A} = 47^\circ$. (1)

2.5 In the diagrams below, $\triangle ABC \sim \triangle PQR$.



2.5.1 Write down the scale factor from $\triangle ABC$ to $\triangle PQR$. (1)

2.5.2 Calculate the length of QR. (2)

2.5.3 Write down the size of $\hat{P}$ if $\hat{A} = 42^\circ$. Give a reason for your answer. (2)

2.6 Each interior angle of a regular polygon is 140° . Calculate the number of sides of the polygon. (3)

QUESTION 3: DATA HANDLING [20]

3.1 Ten learners wrote a test out of 10. Their marks were:

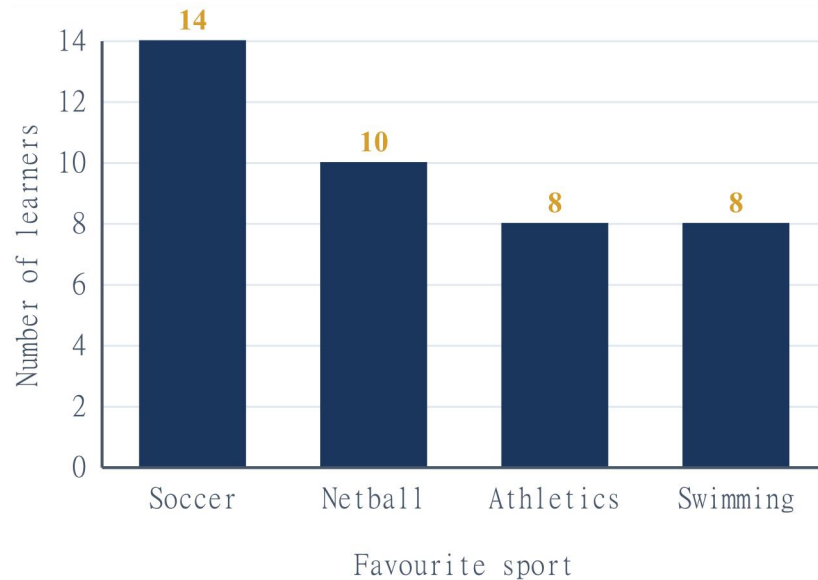
4; 5; 6; 7; 7; 7; 8; 8; 9; 9

3.1.1 Calculate the MEAN of the marks. (2)

3.1.2 Determine the MEDIAN of the marks. (2)

3.1.3 Write down the MODE of the marks. (1)

3.2 The bar graph below shows the favourite sport of 40 learners.



3.2.1 How many learners chose netball? (1)

3.2.2 Which sport was the most popular? (1)

3.2.3 The school will only keep a sport if AT LEAST 25% of these learners chose it. Determine which sport(s) will NOT be kept. Show ALL your working. (4)

3.3 The heights of 20 learners were measured and grouped in the table below.

Height (cm)	140 – 149	150 – 159	160 – 169	170 – 179
Number of learners	3	8	5	4

3.3.1 Write down the modal interval. (1)

3.3.2 In which interval does the MEDIAN height lie? Show your working. (2)

3.3.3 How many learners are shorter than 160 cm? (1)

3.3.4 How many learners were measured altogether? (1)

3.4 A principal wants to find out how all 900 learners at her school travel to school. She asks only the 30 learners in her own class.

3.4.1 Are the 30 learners a SAMPLE or the POPULATION? (1)

3.4.2 Give ONE reason why her results may NOT be reliable. (1)

3.4.3 She decides instead to ask 5 learners from EACH of the 30 classes in the school. Explain why this sample is better. (2)

[20]

QUESTION 4: PROBABILITY [15]

4.1 A bag contains 4 red marbles, 3 blue marbles and 5 green marbles. One marble is taken from the bag at random.

4.1.1 Calculate $P(\text{blue})$. Give your answer in simplest form. (2)

4.1.2 Calculate $P(\text{not green})$. (2)

4.1.3 How many MORE blue marbles must be put into the bag so that $P(\text{blue}) = \frac{1}{2}$? (3)

4.2 80 learners were asked whether they walk or ride to school. The results are shown in the two-way table below.

	Walk	Ride	Total
Boys	18	22	40
Girls	26	(a)	40
Total	44	36	80

4.2.1 Calculate the value of (a). (1)

4.2.2 One learner is chosen at random from all 80 learners. Calculate the probability that the learner is a GIRL WHO WALKS. (2)

4.2.3 One learner is chosen at random from the GIRLS ONLY. Calculate the probability that she RIDES to school. (2)

4.3 A coin is tossed once and a die is rolled once.

4.3.1 Write down the total number of possible outcomes. (1)

4.3.2 Calculate the probability of getting a HEAD and a number GREATER THAN 4. (2)

[15]

TOTAL: 75 MARKS