EXAM-STYLE CLASS TEST

MARKS	DURATION	QUESTIONS
50	1 hour 15 minutes	4

Name: ..... Class: .....

Date: .....

MARK ____ / 50

INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

1.1 The SINE rule is the one to use when you know ... (1)

A) all three sides
B) two angles and a side
C) all three angles
D) two sides and the angle BETWEEN them

1.2 The COSINE rule $a^2 = b^2 + c^2 - 2bc$ cos A is used when ... (1)

A) only one side is known
B) the triangle is right-angled
C) two sides and the INCLUDED angle are known
D) two angles and a side are known

1.3 In $\triangle$ABC, A $= 40°$, B $= 60°$ and $a = 10$. Then $b =$ ... (1)

A) 8,66
B) 15,32
C) 13,47
D) 7,42

1.4 In $\triangle$PQR, $p = 5$, $q = 7$ and R $= 60°$. Then $r =$ ... (1)

A) 6,24
B) 39
C) 10,44
D) 2

1.5 The AREA rule states that the area of a triangle is ... (1)

A) $\frac{1}{2}ab$ sin C
B) $\frac{1}{2}$ × base × height only
C) ab sin C
D) $\frac{1}{2}ab$ cos C

1.6 Find the area of $\triangle ABC$ if $b = 8$, $c = 6$ and $A = 30°$. (1)

A) 24 **B)** 12

C) 48 **D)** $20{,}78$

1.7 In $\triangle ABC$, $a = 9$, $b = 7$ and $c = 5$. Then $\cos A = \ldots$ (1)

A) -7 **B)** $0{,}1$

C) $-0{,}1$ **D)** $0{,}83$

1.8 Hence, in that triangle, $\hat{A} = \ldots$ (1)

A) $1{,}67°$ **B)** $84{,}26°$

C) $5{,}74°$ **D)** $95{,}74°$

1.9 The AMBIGUOUS case of the sine rule can arise when ... (1)

A) two sides and a NON-included angle are given **B)** one of the angles is a right angle

C) all three sides are given **D)** two angles and a side are given

1.10 In $\triangle ABC$, if $C = 90°$ the cosine rule becomes ... (1)

A) $c = a + b$ **B)** $c^2 = a^2 + b^2 - 2ab$

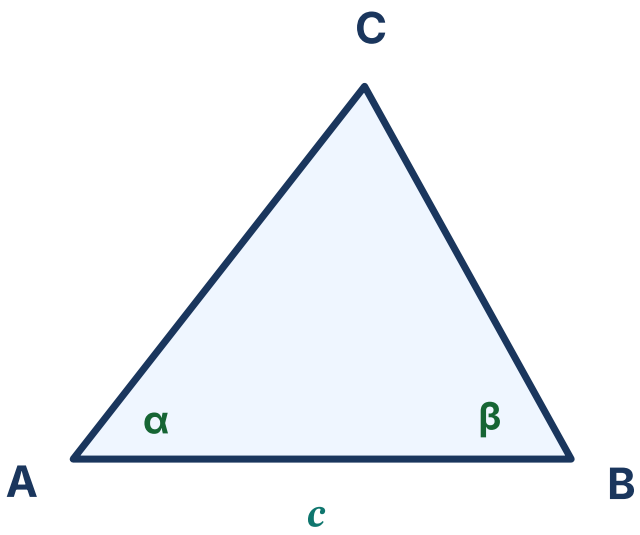
C) $c^2 = a^2 - b^2$ **D)** $c^2 = a^2 + b^2$

ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1

1.1	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

QUESTION 2 [12 MARKS]

In the diagram below, $\triangle ABC$ is drawn with $B\hat{A}C = \alpha$, $A\hat{B}C = \beta$ and $AB = c$.



2.1 Write down the size of $A\hat{C}B$ in terms of α and β. **(1)**

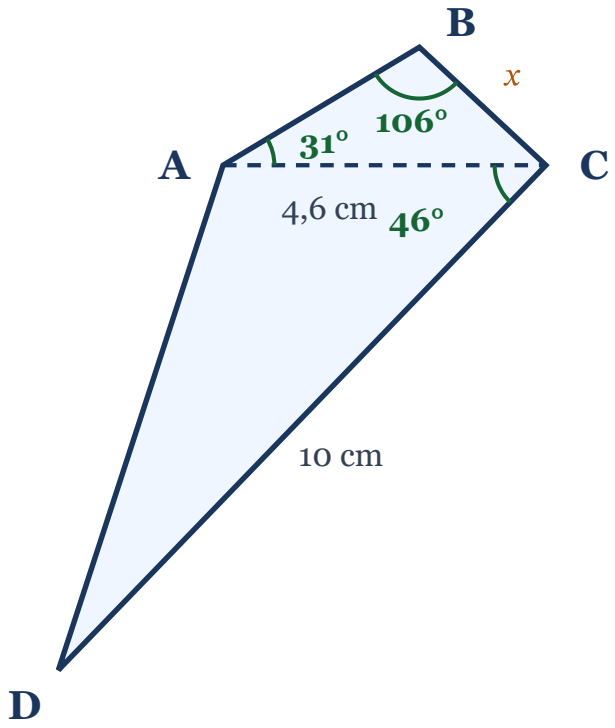
2.2 Show that $BC = \dfrac{c \cdot \sin \alpha}{\sin(\alpha + \beta)}$. **(4)**

2.3 Given that $\alpha = 52°$, $\beta = 61°$ and $c = 48$ m, calculate the length of BC, correct to TWO decimal places. **(3)**

2.4 Hence calculate the area of △ABC, correct to TWO decimal places. **(4)**

QUESTION 3 [15 MARKS]

In the diagram below, ABCD is a quadrilateral with the diagonal AC drawn. $A\hat{B}C = 106°$, $B\hat{A}C = 31°$, $A\hat{C}D = 46°$, AC = 4,6 cm and CD = 10 cm. BC = x. *The diagram is not drawn to scale.*



3.1 Calculate the length of x, correct to TWO decimal places. **(3)**

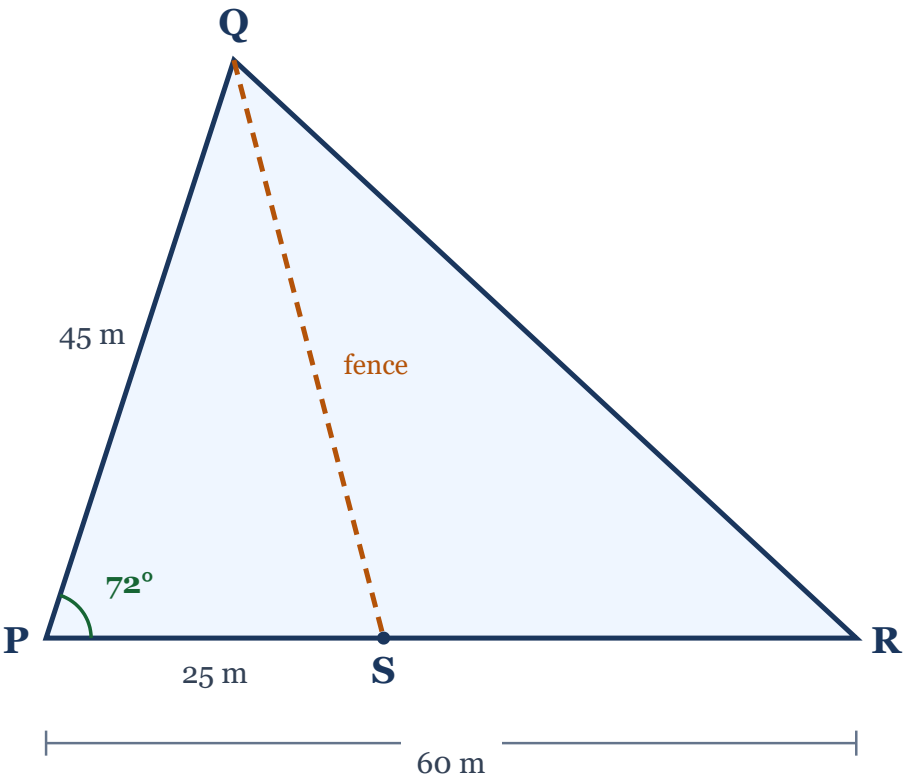
3.2 Calculate the area of △ABC, correct to TWO decimal places. **(4)**

3.3 Calculate the length of AD, correct to TWO decimal places. **(4)**

3.4 Hence calculate the area of quadrilateral ABCD, correct to TWO decimal places. **(4)**

QUESTION 4 [13 MARKS]

The diagram below shows a triangular plot of land PQR with PQ = 45 m, PR = 60 m and $Q\hat{P}R = 72°$. A straight fence QS is built from Q to the point S on PR, with PS = 25 m.



4.1 Calculate the length of QR, correct to TWO decimal places. (3)

4.2 Calculate the size of $P\hat{R}Q$, correct to ONE decimal place. (3)

4.3 Calculate the area of △PQR, correct to TWO decimal places. **(3)**

4.4 Calculate the length of the fence QS, correct to TWO decimal places. **(4)**

TOTAL: 50 marks

This question paper consists of 4 questions.

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