

FREE SAMPLE: THE FIRST 3 QUESTIONS

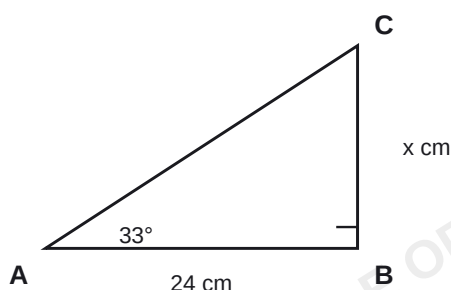
PAPER 1

70 marks · Questions 1 – 23 · short-answer questions · 2 h

Answer ALL questions. Show your working: omission of essential working will result in loss of marks. A calculator may be used. Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place in the case of angles in degrees, unless a different level of accuracy is specified. Use the calculator value of π , or 3.142, unless the answer is required in terms of π . Marks are shown in brackets.

Question 1 (2 marks)

In triangle ABC, $\angle ABC = 90^\circ$, $\angle BAC = 33^\circ$ and $AB = 24$ cm.



- (a) Find x , correct to 3 significant figures.

Answer _____

Question 2 (2 marks)

A regular polygon has 6 sides.

- (a) Find the size of each exterior angle. [1 mark]

Answer _____

(b) Find the size of each interior angle. [1 mark]

Answer _____

Question 3 (3 marks)

Each exterior angle of a regular polygon is 45° .

(a) Find the number of sides of the polygon. [1 mark]

Answer _____

(b) Find the size of each interior angle. [1 mark]

Answer _____

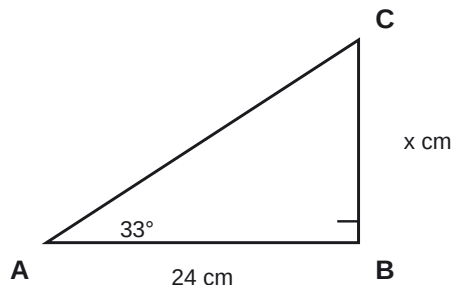
(c) Find the sum of all the interior angles. [1 mark]

Answer _____

THE WORKED ANSWERS TO THOSE 3 QUESTIONS

Question 1 (2 marks) [Trigonometry]

In triangle ABC, $\angle ABC = 90^\circ$, $\angle BAC = 33^\circ$ and $AB = 24$ cm.



(a) Find x , correct to 3 significant figures.

(a) Answer: 15.6 cm

- Label the sides from angle A: BC is opposite, AB is adjacent, AC is the hypotenuse.
- $\tan A = \text{opposite} \div \text{adjacent}$ (TOA), so $x = 24 \times \tan 33^\circ$.
- $x = 15.6$ cm (3 s.f.).

LOS: Geometry and Measurement · Trigonometry

KEY TAKEAWAY

SOH-CAH-TOA: choose the ratio that links the side you know to the side you want.

Question 2 (2 marks) [Angles and polygons]

A regular polygon has 6 sides.

(a) Find the size of each exterior angle.

(a) Answer: 60°

- Exterior angles add up to 360° , so each is $360^\circ \div 6 = 60^\circ$.

(b) Find the size of each interior angle.

(b) Answer: 120°

- Interior angle = $180^\circ - \text{exterior angle} = 180^\circ - 60^\circ = 120^\circ$.

LOS: Geometry and Measurement · Angles and polygons

KEY TAKEAWAY

Exterior angles of any polygon add to 360° ; interior angle = $180^\circ - \text{exterior angle}$.

Question 3 (3 marks) [Angles and polygons]

Each exterior angle of a regular polygon is 45° .

(a) Find the number of sides of the polygon.

(a) Answer: 8

- The exterior angles of any polygon add up to 360° .
- Number of sides = $360^\circ \div 45^\circ = 8$.

(b) Find the size of each interior angle.

(b) Answer: 135°

- An interior angle and its exterior angle lie on a straight line: $180^\circ - 45^\circ = 135^\circ$.

(c) Find the sum of all the interior angles.

(c) Answer: 1080°

- Sum of interior angles = $(n - 2) \times 180^\circ = (8 - 2) \times 180^\circ = 1080^\circ$.

LOS: Geometry and Measurement · Angles and polygons

KEY TAKEAWAY

Exterior angles of any polygon add to 360° ; interior angle = $180^\circ - \text{exterior angle}$.

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