



ACHIEVE ACADEMY

GCSE Maths — Higher Tier

Pythagoras & Trigonometry · Practice Booklet

NAME: _____

CLASS: _____

DATE: _____

☐ Developing

☒ Secure

☐ Greater Depth

Answer every question in the working space provided. Method marks are available for correct working even if the final answer is wrong. Check the time allowed with your tutor before you start.

Pythagoras & Trigonometry

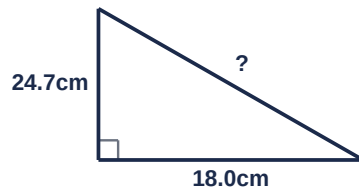
Total marks available: 106

● Pythagoras & Trigonometry

Q1

[3 marks]

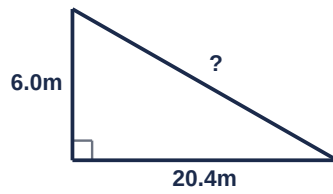
A right-angled triangle has legs of 18.0cm and 24.7cm. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q2

[3 marks]

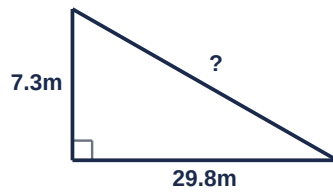
A right-angled triangle has legs of 20.4m and 6.0m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q3

[3 marks]

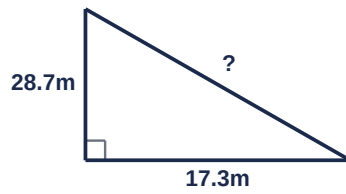
A right-angled triangle has legs of 29.8m and 7.3m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q4

[3 marks]

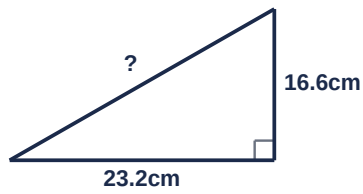
A right-angled triangle has legs of 17.3m and 28.7m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q5

[3 marks]

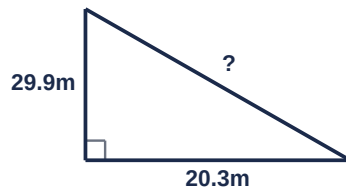
A right-angled triangle has legs of 23.2cm and 16.6cm. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q6

[3 marks]

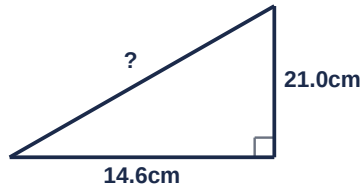
A right-angled triangle has legs of 20.3m and 29.9m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q7

[3 marks]

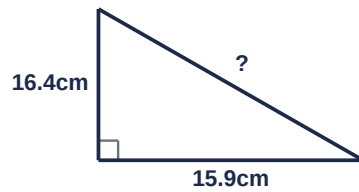
A right-angled triangle has legs of 14.6cm and 21.0cm. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q8

[3 marks]

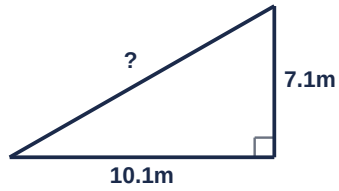
A right-angled triangle has legs of 15.9cm and 16.4cm. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q9

[3 marks]

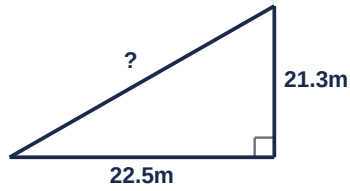
A right-angled triangle has legs of 10.1m and 7.1m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q10

[3 marks]

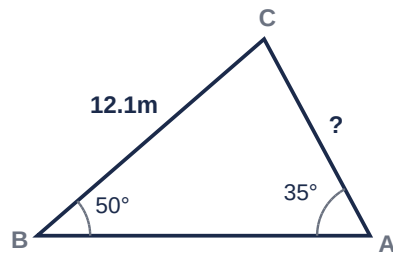
A right-angled triangle has legs of 22.5m and 21.3m. Calculate the hypotenuse, marked with a question mark, giving your answer to 3 significant figures.



Q11

[4 marks]

In triangle ABC, angle A = 35° , angle B = 50° , and side a (opposite A) = 12.1m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

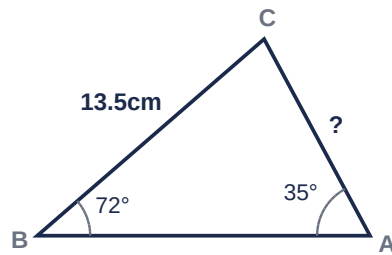


(diagram not drawn to scale)

Q12

[4 marks]

In triangle ABC, angle A = 35° , angle B = 72° , and side a (opposite A) = 13.5cm. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

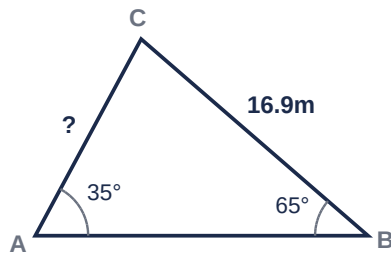


(diagram not drawn to scale)

Q13

[4 marks]

In triangle ABC, angle A = 35° , angle B = 65° , and side a (opposite A) = 16.9m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

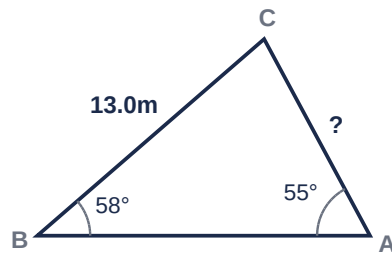


(diagram not drawn to scale)

Q14

[4 marks]

In triangle ABC, angle A = 55° , angle B = 58° , and side a (opposite A) = 13.0m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

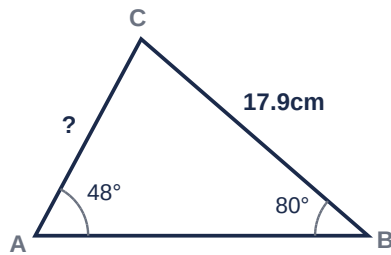


(diagram not drawn to scale)

Q15

[4 marks]

In triangle ABC, angle A = 48° , angle B = 80° , and side a (opposite A) = 17.9cm. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

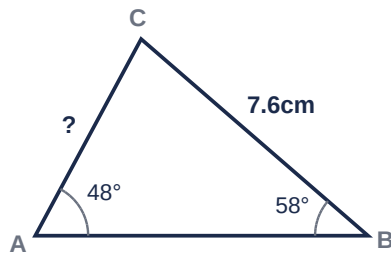


(diagram not drawn to scale)

Q16

[4 marks]

In triangle ABC, angle A = 48° , angle B = 58° , and side a (opposite A) = 7.6cm. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

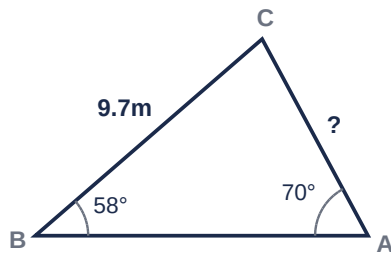


(diagram not drawn to scale)

Q17

[4 marks]

In triangle ABC, angle A = 70° , angle B = 58° , and side a (opposite A) = 9.7m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

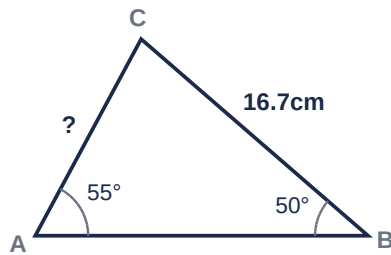


(diagram not drawn to scale)

Q18

[4 marks]

In triangle ABC, angle A = 55° , angle B = 50° , and side a (opposite A) = 16.7cm. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.



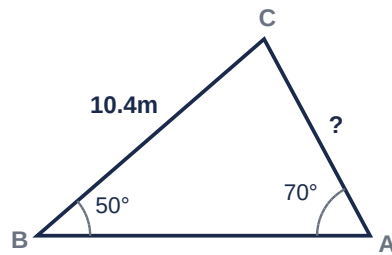
(diagram not drawn to scale)

A large dashed rectangular box for the student's answer.

Q19

[4 marks]

In triangle ABC, angle A = 70° , angle B = 50° , and side a (opposite A) = 10.4m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

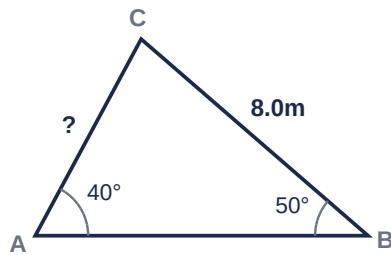


(diagram not drawn to scale)

Q20

[4 marks]

In triangle ABC, angle A = 40° , angle B = 50° , and side a (opposite A) = 8.0m. Use the sine rule to calculate the length of side b (opposite B), marked with a question mark, to 3 significant figures.

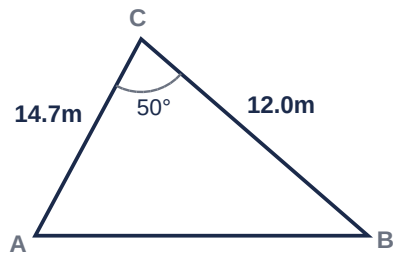


(diagram not drawn to scale)

Q21

[3 marks]

In triangle ABC, side $a = 12.0\text{m}$, side $b = 14.7\text{m}$, and the included angle $C = 50^\circ$. Calculate the area of the triangle, to 3 significant figures.

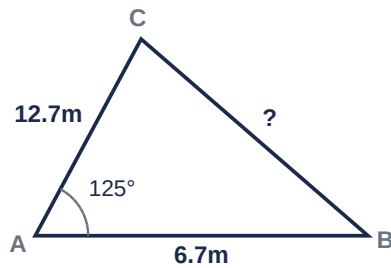


(diagram not drawn to scale)

Q22

[4 marks]

In triangle ABC, side $b = 12.7\text{m}$, side $c = 6.7\text{m}$, and the angle between them, angle $A = 125^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.

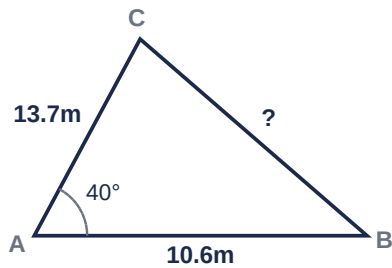


(diagram not drawn to scale)

Q23

[4 marks]

In triangle ABC, side $b = 13.7\text{m}$, side $c = 10.6\text{m}$, and the angle between them, angle $A, = 40^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.

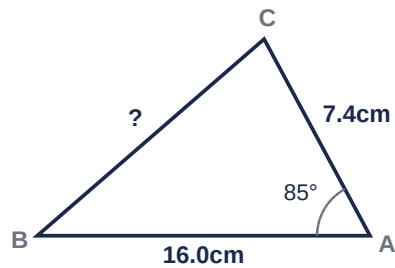


(diagram not drawn to scale)

Q24

[4 marks]

In triangle ABC, side $b = 7.4\text{cm}$, side $c = 16.0\text{cm}$, and the angle between them, angle $A = 85^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.

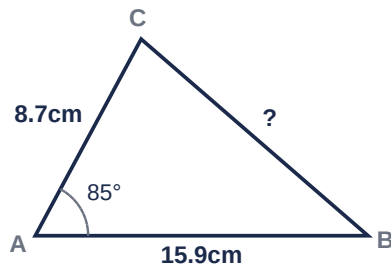


(diagram not drawn to scale)

Q25

[4 marks]

In triangle ABC, side $b = 8.7\text{cm}$, side $c = 15.9\text{cm}$, and the angle between them, angle A , $= 85^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.

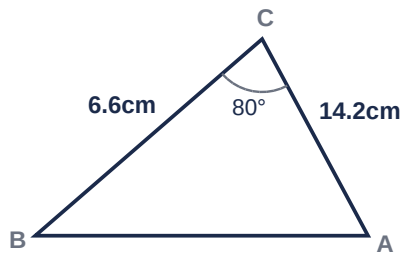


(diagram not drawn to scale)

Q26

[3 marks]

In triangle ABC, side $a = 6.6\text{cm}$, side $b = 14.2\text{cm}$, and the included angle $C = 80^\circ$. Calculate the area of the triangle, to 3 significant figures.

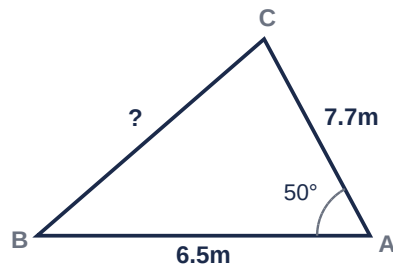


(diagram not drawn to scale)

Q27

[4 marks]

In triangle ABC, side $b = 7.7\text{m}$, side $c = 6.5\text{m}$, and the angle between them, angle $A = 50^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.

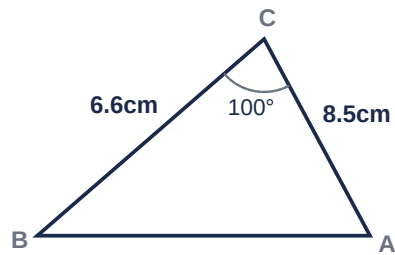


(diagram not drawn to scale)

Q28

[3 marks]

In triangle ABC, side $a = 6.6\text{cm}$, side $b = 8.5\text{cm}$, and the included angle $C = 100^\circ$. Calculate the area of the triangle, to 3 significant figures.



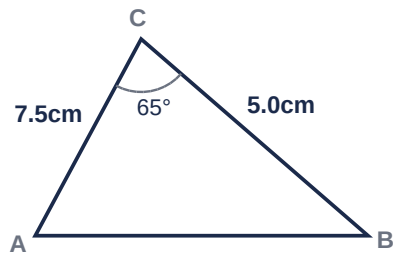
(diagram not drawn to scale)

A large dashed rectangular box for the student's answer.

Q29

[3 marks]

In triangle ABC, side $a = 5.0\text{cm}$, side $b = 7.5\text{cm}$, and the included angle $C = 65^\circ$. Calculate the area of the triangle, to 3 significant figures.



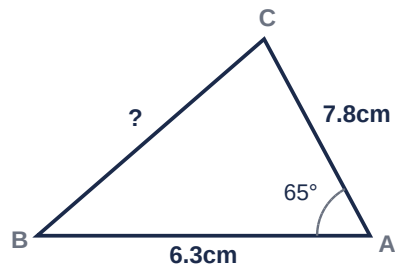
(diagram not drawn to scale)

A large dashed rectangular box for the student's answer.

Q30

[4 marks]

In triangle ABC, side $b = 7.8\text{cm}$, side $c = 6.3\text{cm}$, and the angle between them, angle A , $= 65^\circ$. Use the cosine rule to calculate the length of side a , marked with a question mark, to 3 significant figures.



(diagram not drawn to scale)