Pythagoras and Trigonometry - Practice paper 1

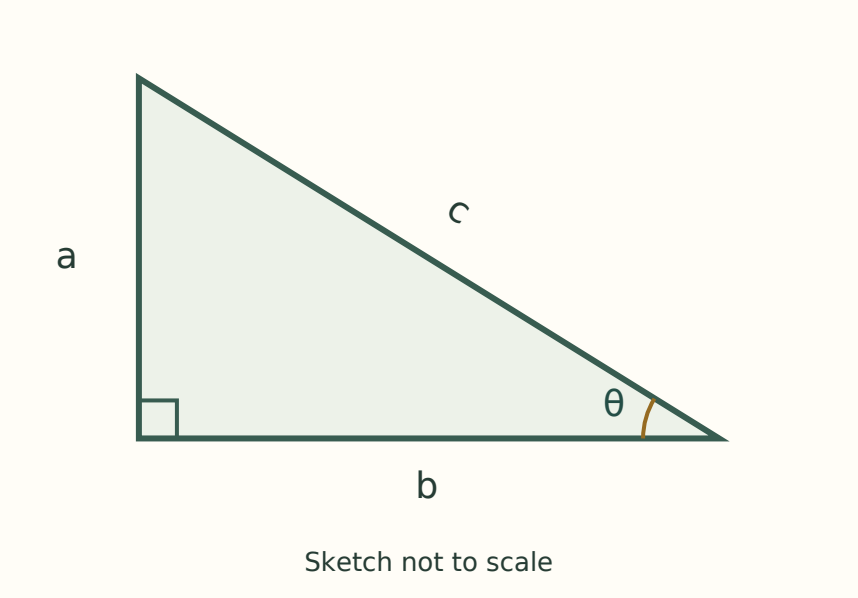
Name: _____ Date: _____

16 questions | 43 marks | 55 minutes

Apply right-triangle geometry to diagrams, lengths, angles and contextual decisions.

A scientific calculator may be used.

1. In the sketch, which side is the hypotenuse? [1 mark]



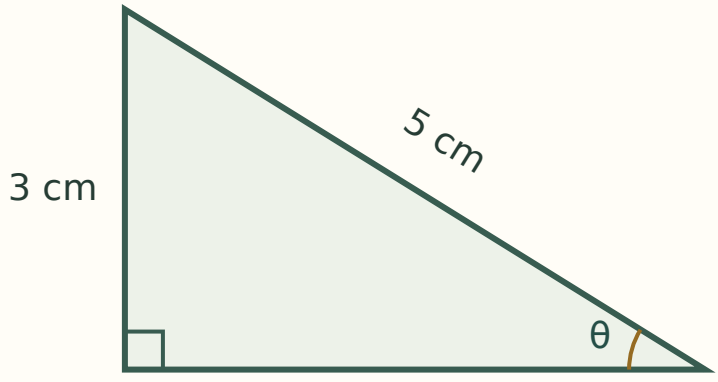
Sketch not to scale

2. Find the hypotenuse with legs 6 cm and 8 cm. [2 marks]

3. Hypotenuse $= 17$ cm and one leg $= 15$ cm. Find the other leg. [2 marks]

4. Find the hypotenuse with legs 3 m and 5 m, exactly and to two decimal places. [3 marks]

5. For θ in this sketch, name the opposite and adjacent lengths. [2 marks]



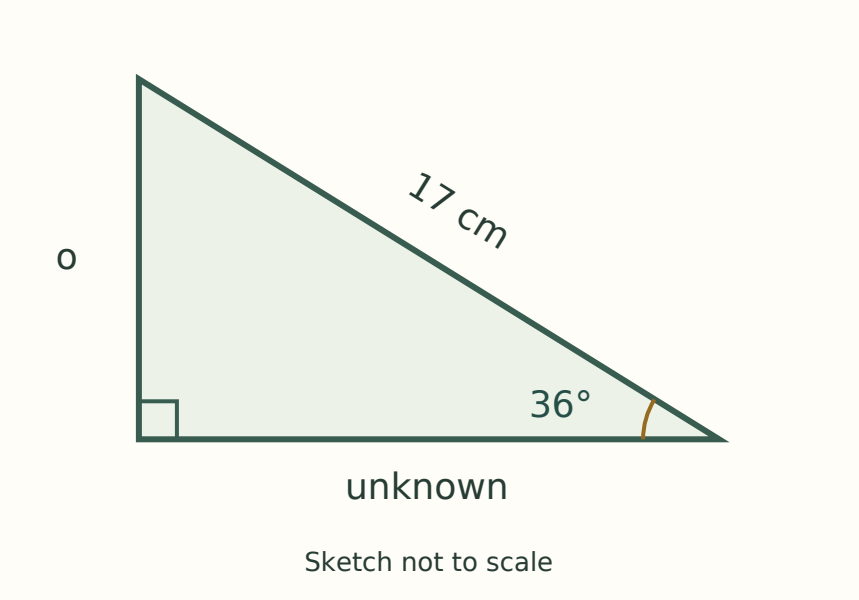
Sketch not to scale

6. Opposite, adjacent and hypotenuse are 5, 12 and 13. State $\sin\theta$, $\cos\theta$ and $\tan\theta$. [3 marks]

7. Evaluate $\sin 30^\circ$. [1 mark]

8. Hypotenuse $=10$ m and opposite $=6$ m. Find adjacent. [2 marks]

9. Find opposite when hypotenuse $=17$ cm and $\theta = 36^\circ$. Round to two decimal places. [3 marks]



Sketch not to scale

10. Find opposite when adjacent $=9$ m and $\theta = 28^\circ$. Round to two decimal places. [3 marks]

11. Find hypotenuse when opposite $=7$ cm and $\theta = 40^\circ$. Round to two decimal places. [3 marks]

12. Find θ when adjacent $= 9$ cm and hypotenuse $= 15$ cm. Round to two decimal places. [3 marks]

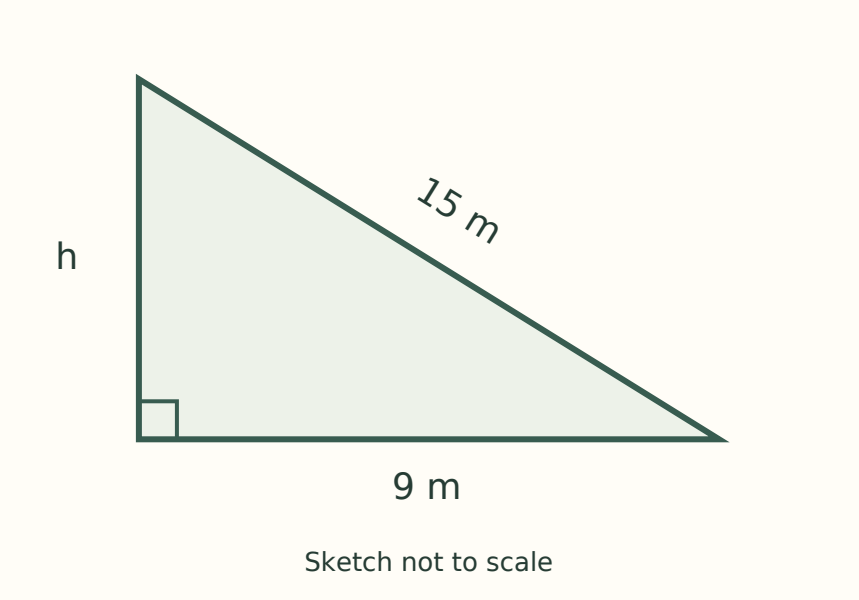
13. Similar right triangles have $\frac{\text{opposite}}{\text{adjacent}} = \frac{3}{4}$. Find opposite when adjacent $= 28$ cm. [3 marks]

14. A rectangular field is 18 m by 24 m. Answer each part. [5 marks]

(a) Find the diagonal. [2 marks]

(b) Find the angle between the diagonal and the 24 m side, to two decimal places. [3 marks]

15. A 15 m ladder has its foot 9 m from a vertical wall. How high does it reach? [3 marks]



Sketch not to scale

16. A student writes $\tan 30^\circ = \frac{x}{10}$, then $x = \frac{10}{\tan 30^\circ}$. Correct the rearrangement and find x to two decimal places. [4 marks]