Pythagoras and Trigonometry - Practice paper 2

Name: _____ Date: _____

16 questions | 44 marks | 55 minutes

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

A scientific calculator may be used.

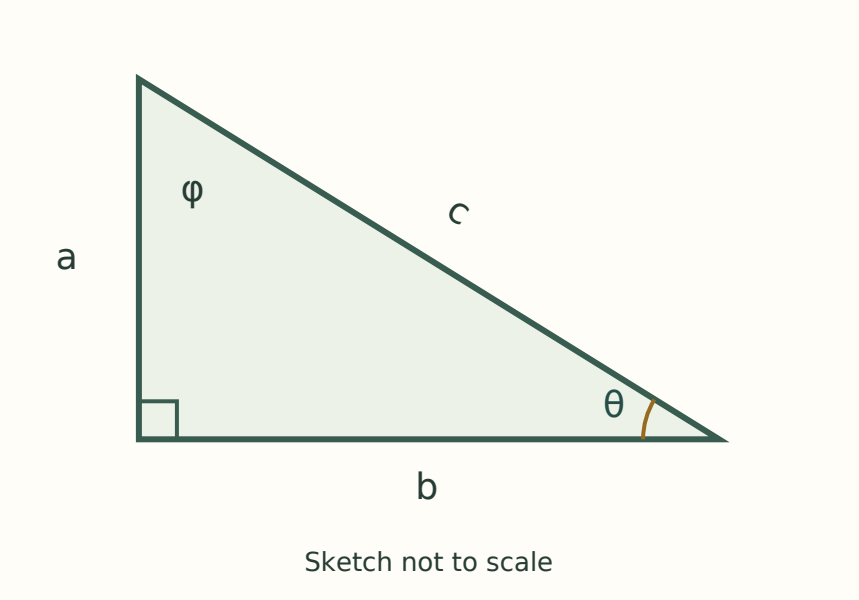
1. Triangle PQR is right-angled at R. Which side is the hypotenuse? [1 mark]

2. Find the hypotenuse with legs 9 cm and 40 cm. [2 marks]

3. Hypotenuse $= 25$ m and one leg $= 7$ m. Find the other leg. [2 marks]

4. Find the hypotenuse with legs 12 m and 13 m, exactly and to two decimal places. [3 marks]

5. Use upper angle ϕ instead of θ. Name opposite and adjacent. [2 marks]



Sketch not to scale

6. Enlarge a 5-12-13 triangle by 2.5. Find the three new side lengths and say whether the angles change. [3 marks]

7. You know adjacent and hypotenuse and need the acute angle. Which inverse function? [2 marks]

8. Explain why $\sin\theta = 1.2$ cannot describe an acute angle in a right triangle. [2 marks]

9. Find adjacent when $h = 22$ m and $\theta = 41^\circ$. Give two decimal places. [3 marks]

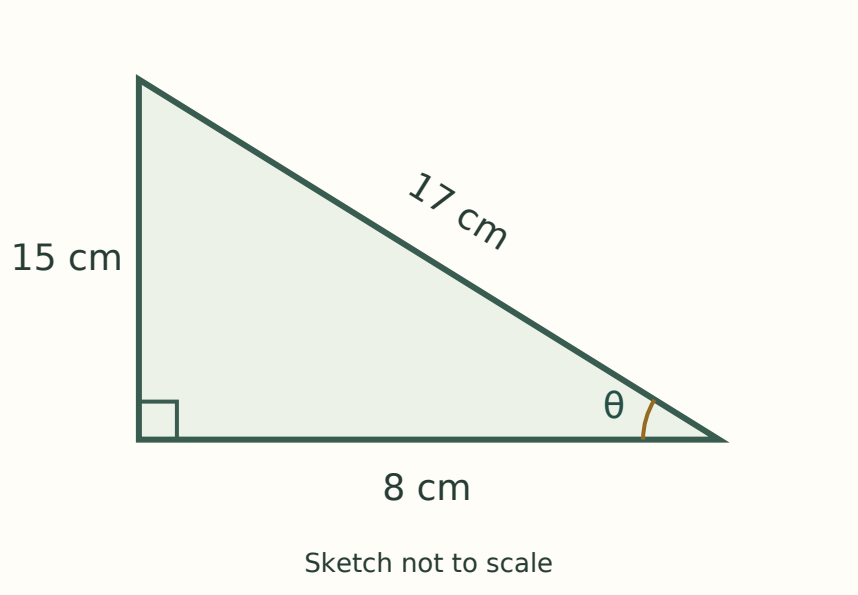
10. Find adjacent when $o = 12$ cm and $\theta = 32^\circ$. Give two decimal places. [3 marks]

11. Find hypotenuse when $a = 7$ cm and $\theta = 54^\circ$. Give two decimal places. [3 marks]

12. Find the acute angle opposite a 9 cm side when hypotenuse $= 15$ cm. Give two decimal places. [3 marks]

13. Find the angle with opposite 14 m and adjacent 20 m. Give two decimal places. [3 marks]

14. Find θ in the diagram to one decimal place. [3 marks]



Sketch not to scale

15. A ramp rises 0.8 m over a horizontal run of 6 m. Answer each part. [5 marks]

(a) Find the sloping length to two decimal places. [2 marks]

(b) Find the angle to horizontal to two decimal places. [3 marks]

16. A student says doubling all sides doubles the acute angles. Use side ratios to explain why this is false. [4 marks]