Pythagoras’ theorem - topic test

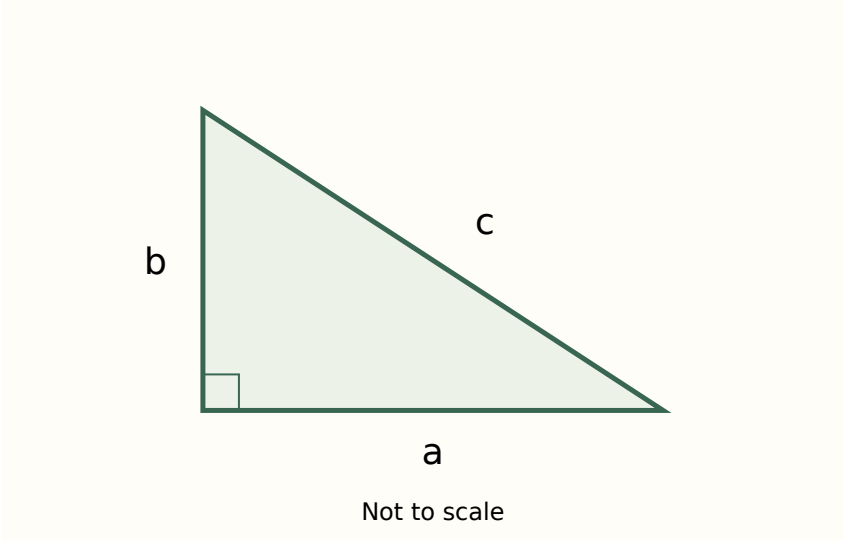
Name: _____ Date: _____

15 questions | 37 marks | 45 minutes

A progressive topic paper with calculations, explanations and practical applications.

No calculator needed.

1. Which side is the hypotenuse in the supplied triangle? [1 mark]



Not to scale

2. Write the theorem for legs a, b and hypotenuse c. [1 mark]

3. Legs are 3 cm and 4 cm. Find the hypotenuse. [2 marks]

4. Legs are 12 m and 16 m. Find the hypotenuse. [2 marks]

5. The hypotenuse is 13 cm and one leg is 12 cm. Find the other leg. [2 marks]

6. The hypotenuse is 25 cm and one leg is 15 cm. Find the other leg. [2 marks]

7. Test lengths 9 cm, 12 cm and 15 cm for a right angle. [2 marks]

8. Test lengths 4 cm, 6 cm and 8 cm for a right angle. [2 marks]

9. A right triangle has legs 2 cm and 5 cm. [3 marks]

(a) Give the exact hypotenuse length. [2 marks]

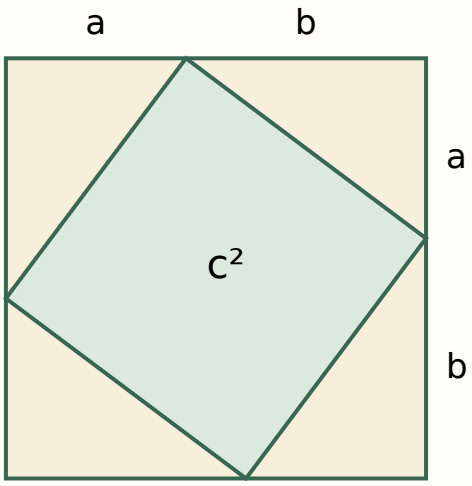
(b) Between which consecutive integers does this length lie? [1 mark]

10. A rectangular park is 50 m by 120 m. Find its diagonal. [3 marks]

11. A ladder is 6.5 m long and its foot is 2.5 m from a perpendicular wall. Find the height reached. [3 marks]

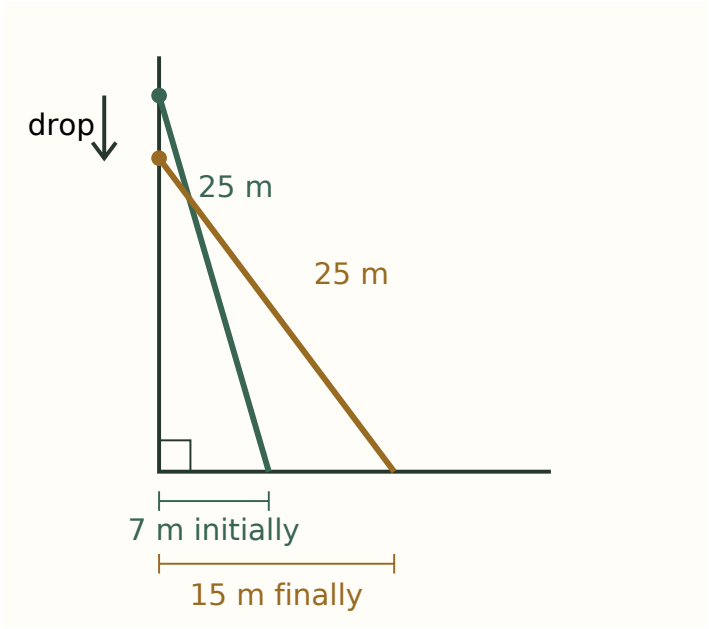
12. Legs are 80 cm and 1.5 m. Find the hypotenuse in metres. [3 marks]

13. Four right triangles with legs 3 and 4 fit inside a square of side 7, as shown. Use areas to find the central square side. [3 marks]



Four triangles each have area ab ÷ 2.

14. A 25 m ladder moves from a foot distance of 7 m to a foot distance of 15 m from a perpendicular wall. Find the vertical drop of its top. [4 marks]



15. A rectangle has width 8 cm and diagonal 17 cm. [4 marks]

(a) Find its length. [2 marks]

(b) Find its perimeter. [2 marks]