

# Pythagoras Theorem

Chapter 2: Pythagoras Theorem · Topic 1

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## Key Concept

The Pythagoras theorem is stated as  $a^2+b^2=c^2$ , where  $c$  is the hypotenuse (longest side) and  $a, b$  are the other two sides of a right triangle.

This theorem only applies to right triangles, where one angle measures exactly  $90^\circ$ , and  $c$  is always opposite this right angle.

The converse of the Pythagoras theorem states that if  $a^2+b^2=c^2$  for a triangle's sides, then the triangle must be a right triangle.

The Pythagoras theorem has practical applications in construction, navigation, and calculating distances that cannot be measured directly.

## Quick Revision Notes

- Pythagoras theorem:  $a^2+b^2=c^2$ .
- $c$  = hypotenuse (longest side).
- $a, b$  = other two sides.
- Only applies to right triangles.
- One angle is exactly  $90^\circ$ .
- $c$  is opposite the right angle.
- Converse: if  $a^2+b^2=c^2$ , triangle is right-angled.
- Applications: construction, navigation, distances.

## Practice Questions

- 1 Find the hypotenuse of a right triangle with legs 6 and 8.
- 2 Verify if a triangle with sides 5,12,13 is a right triangle.
- 3 Solve a real-life problem using the Pythagoras theorem.
- 4 Discuss why this theorem only applies to right triangles.
- 5 Calculate a missing side using the theorem.
- 6 Explain the Pythagoras theorem in your own words.