

Pythagoras Theorem: Worksheet 3

Draw and label a diagram, and use Pythagoras' Theorem to help you work out the answers to these questions. Ensure you label the right angle and work out which side is the hypotenuse.

Pythagoras' Theorem

"For any right-angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides."

$$a^2 + b^2 = c^2$$

1. Tony has got his kite stuck at the top of a very tall tree. He knows the string on his kite is 20 m long. When he pulls the string tight and holds the very end on the ground it touches 17 m from the bottom of the tree. If the ground is flat, how tall is the tree?
2. Susan is making a jump to ride her bike over. She uses a 1 m plank of wood to make the jump, and raises the end 50 cm off the ground with a second piece of wood. How far along the ground from the end of the plank that touches the ground is the second piece of wood?
3. Robert is using a 5 m ladder to climb in his upstairs bedroom window. He finds that if he puts the base of the ladder 3.3 m from the wall the top leans on the windowsill. How high from the ground is the windowsill?
4. The guy wires holding up an 11 m radio transmitter join 2 m from the top of the aerial, and are anchored to the ground 7 m from the base of the aerial. How long are the guy wires?
5. Tim is standing across a river from Mary. They discover that if they stand exactly opposite each other they can each hold one end of a 5 m rope. How long would the rope have to be to reach if Tim moved 8 m downstream?