Checking whether a triangle is right-angled

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Test lengths 5, 12 and 13 for a right angle. [2 marks]

$5 + 12 > 13$.

$25 + 144 = 169 = 13^2$.

Answer: Yes.

2. Test lengths 8, 10 and 12 for a right angle. [2 marks]

They form a triangle.

$64 + 100 = 164$, not $12^2 = 144$.

Answer: No.

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

The longest is 15.

$81 + 144 = 225 = 15^2$.

Answer: Yes.

4. Can lengths 2, 3 and 5 form a right triangle? [2 marks]

2 + 3 equals 5.

The triangle inequality is not strict.

Answer: No; they do not form a non-flat triangle.

5. Test exact lengths 0.6 m, 0.8 m and 1 m. [2 marks]

$0.6 + 0.8 > 1$.

$0.36 + 0.64 = 1 = 1^2$.

Answer: They form a right triangle.

6. A frame has exact sides 20 cm, 21 cm and 29 cm. Is the angle opposite the 29 cm side a right angle? Explain. [3 marks]

The triangle is valid because $20 + 21 > 29$.

$400 + 441 = 841 = 29^2$.

Answer: Yes.