Right-triangle geometry

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Triangle PQR has $Q = 90^\circ$. Which side is the hypotenuse? [2 marks]

The hypotenuse is opposite the right angle Q.

Answer: PR

2. In right triangle ABC, $B = 90^\circ$ and $A = 41^\circ$. Find C. [2 marks]

$C = 180^\circ - 90^\circ - 41^\circ = 49^\circ$.

Answer: 49°

3. Triangle XYZ has $Z = 90^\circ$. Relative to angle X, name the opposite leg and adjacent leg. [2 marks]

XY is the hypotenuse.

YZ does not touch X; XZ is the remaining leg touching X.

Answer: Opposite YZ; adjacent XZ.

4. In the previous triangle, choose Y instead. Which leg is now opposite? [2 marks]

The side not touching Y is XZ; the hypotenuse stays XY.

Answer: XZ

5. Could a right triangle have another angle of 94°? Explain. [3 marks]

$90^\circ + 94^\circ$ already exceeds 180°.

Both non-right angles in a right triangle must be acute.

Answer: No.

6. A right triangle is drawn upside down. A student calls its shortest side the hypotenuse. Explain the correction. [3 marks]

Orientation does not change side relationships.

Find the marked right angle, then the opposite side.

Answer: The hypotenuse is opposite the 90° angle and must be the longest side.