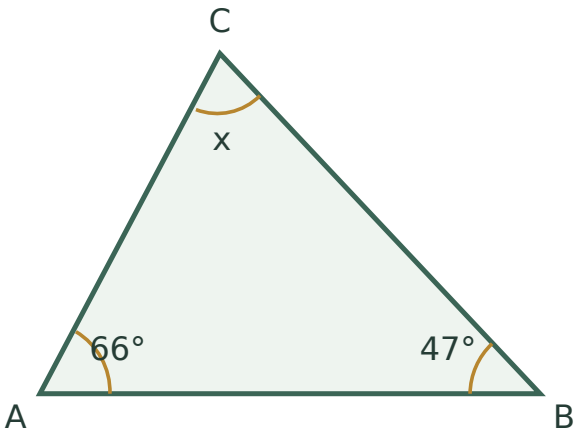
Triangle angle sums

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. Two interior angles of a triangle are 66° and 47°. Find the third. [2 marks]



Sketch not to scale

$66 + 47 = 113$.

$180^\circ - 113^\circ = 67^\circ$.

Answer: 67°.

2. An isosceles triangle has vertex angle 42°. Find each base angle. [2 marks]

$180 - 42 = 138$.

$138 \div 2 = 69$.

Answer: 69°.

3. A triangle contains a right angle and an angle of 58°. Find the third angle. [2 marks]

$180^\circ - 90^\circ - 58^\circ = 32^\circ$.

Answer: 32°.

4. A triangle has an exterior angle of 118°. One of the two non-adjacent interior angles is 43°. [4 marks]

(a) Find the interior angle next to the exterior angle. [2 marks]

$180 - 118 = 62$.

Answer: 62°.

(b) Find the other non-adjacent interior angle. [2 marks]

The two remote interior angles total the exterior angle.

$118 - 43 = 75$.

Answer: 75°.

5. Can a triangle have angles 90°, 60° and 40°? Give a numerical reason. [2 marks]

$90 + 60 + 40 = 190$, not 180 degrees.

These three angles cannot be the interior angles of one triangle.

Answer: No.

6. An isosceles triangle has vertex angle 70°. Each base angle is $(2x + 5)^\circ$. Find x. [3 marks]

$70 + 2(2x + 5) = 180$.

$4x + 80 = 180$, so $4x = 100$ and $x = 25$.

Each base angle is 55 degrees; $55 + 55 + 70 = 180$.

Answer: $x = 25$.