

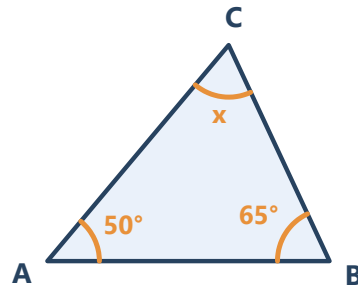
GCSE Maths: Angles in triangles (Higher): answers

GCSE Maths - Angles, Polygons and Symmetry - Higher - Lesson 17.3

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch17-angles-polygons-symmetry/higher/angles-in-triangles/

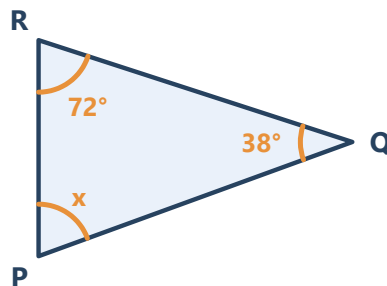
Exercise 17C Angles in triangles Non-calculator

- 1 The diagram shows a triangle. Work out the size of angle x . Give a reason for your answer.



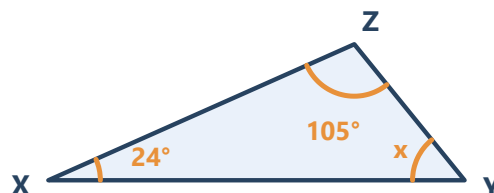
Answer: 65° (angles in a triangle add up to 180°)

- 2 The diagram shows a triangle. Work out the size of angle x .



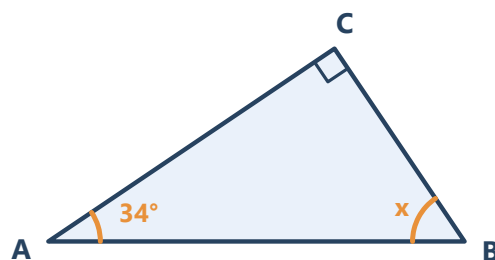
Answer: 70°

- 3 The diagram shows a triangle. Work out the size of angle x . Give a reason for your answer.



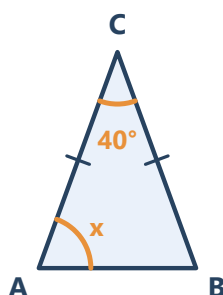
Answer: 51° (angles in a triangle add up to 180°)

- 4 The diagram shows a right-angled triangle. Work out the size of angle x . Give a reason for your answer.



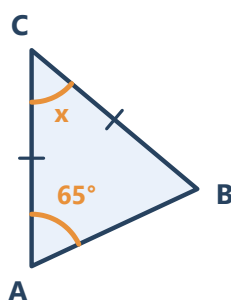
Answer: 56° (angles in a triangle add up to 180°)

- 5 The diagram shows an isosceles triangle. Work out the size of angle x . Give a reason for your answer.



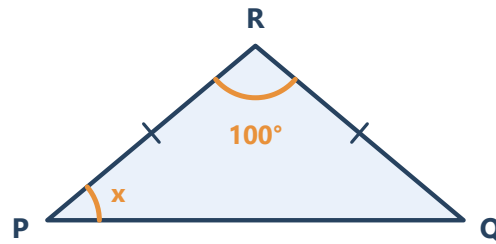
Answer: 70° (base angles of an isosceles triangle are equal; angles in a triangle add up to 180°)

- 6 The diagram shows an isosceles triangle. Work out the size of angle x . Give a reason for your answer.



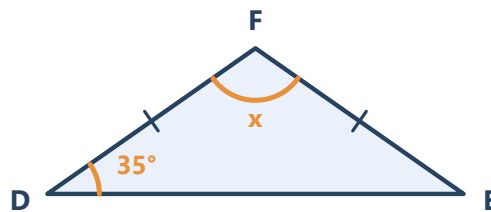
Answer: 50° (base angles of an isosceles triangle are equal; angles in a triangle add up to 180°)

- 7 The diagram shows an isosceles triangle. Work out the size of angle x . Give a reason for your answer.



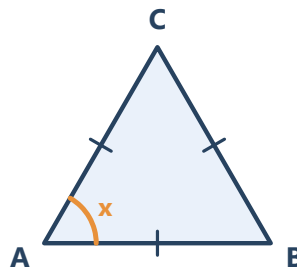
Answer: 40° (base angles of an isosceles triangle are equal; angles in a triangle add up to 180°)

- 8 The diagram shows an isosceles triangle. Work out the size of angle x . Give a reason for your answer.



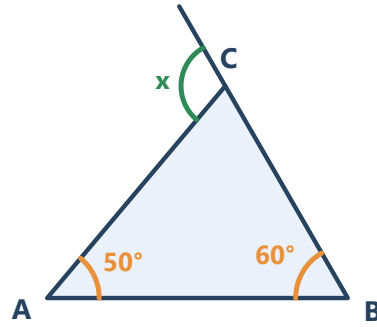
Answer: 110° (base angles of an isosceles triangle are equal; angles in a triangle add up to 180°)

- 9 Triangle ABC is equilateral. Work out the size of angle x . Give a reason.



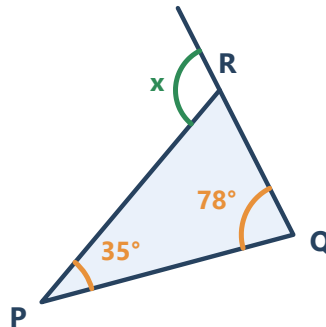
Answer: 60° (each angle of an equilateral triangle is 60°)

- 10 The side BC of triangle ABC is extended. Work out the size of angle x . Give a reason for your answer.



Answer: 110° (the exterior angle of a triangle equals the sum of the two opposite interior angles)

- 11** The side BC of triangle ABC is extended. Work out the size of angle x . Give a reason for your answer.



Answer: 113° (the exterior angle of a triangle equals the sum of the two opposite interior angles)

- 12** Triangle ABC has angle $A = 70^\circ$ and angle $B = 45^\circ$. Write down the type of triangle (acute-angled, right-angled or obtuse-angled). Show your working.

Answer: acute-angled (angle $C = 65^\circ$)

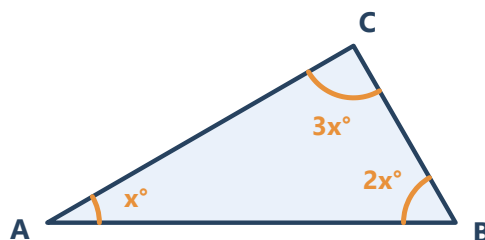
- 13** A roof truss is an isosceles triangle. The angle at the top is 110° . Work out the size of each of the other two angles.

Answer: 35°

- 14** The three angles of a triangle are in the ratio $1 : 2 : 3$. Work out the size of each angle and say what type of triangle it is.

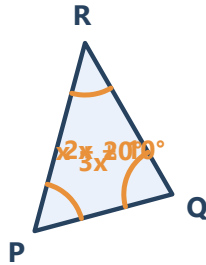
Answer: 30° , 60° , 90° (right-angled)

- 15** The diagram shows a triangle. Work out the size of each angle.



Answer: 30° , 60° , 90°

- 16** The diagram shows a triangle. Work out the value of x .



Answer: $x = 25$

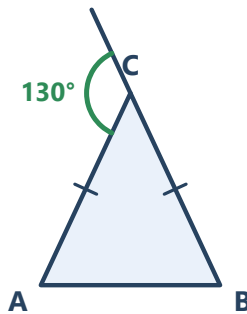
- 17** Explain why a triangle cannot have two right angles.

Answer: $90 + 90 = 180$, leaving 0° for the third angle

- 18** Sam says: "The angles in my triangle are 70° , 60° and 60° ." Is Sam correct? Give a reason.

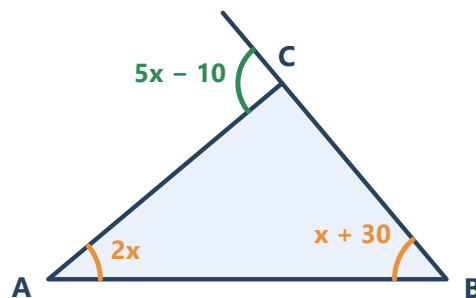
Answer: No: they add up to 190°

- 19** In triangle ABC, $AC = BC$ and the exterior angle at C is 130° . Work out the size of angle CAB.



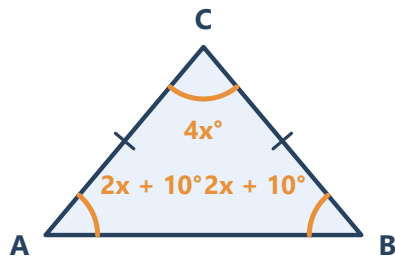
Answer: 65°

- 20** The diagram shows a triangle with one side extended. Work out the value of x .



Answer: $x = 20$

- 21** The diagram shows a triangle. Work out the size of the angle marked $4x^\circ$.



Answer: 80°

- 22** The angle at the top of an isosceles triangle is x . Find an expression for a base angle in terms of x . Hence show that a base angle of an isosceles triangle is always less than 90° .

Answer: base angle = $(180 - x) \div 2 = 90 - x/2$