

# Angles: Lines, Triangles and Polygons

GCSE Mathematics • **Foundation Tier** • Grades 2–3 • Non-calculator

Name: .....

Class: .....

Total: ..... / 49

*Show all your working. Marks are given for correct method as well as the final answer.*

1. Angles on a straight line add to  $180^\circ$ . Work out the missing angle when one angle is  $115^\circ$ . [1 mark]

Answer: .....

2. Angles at a point add to  $360^\circ$ . Three angles are  $90^\circ$ ,  $145^\circ$  and  $x$ . Find  $x$ . [2 marks]

Answer: .....

3. Find  $x$ , giving a reason. [2 marks]

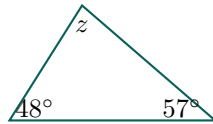


Answer: .....

4. Two lines cross. One angle is  $37^\circ$ . Write down the vertically opposite angle and name the rule. [2 marks]

Answer: .....

5. Find  $z$  in the triangle. [2 marks]



Answer: .....

6. An isosceles triangle has an apex angle of  $40^\circ$ . Work out each base angle. [3 marks]

Answer: .....

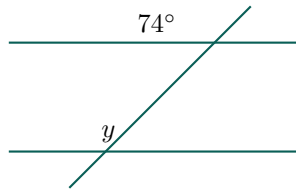
7. A triangle has angles  $3x$ ,  $4x$  and  $5x$ . Find  $x$ . [3 marks]

Answer: .....

8. Work out the missing angle in a quadrilateral with angles  $85^\circ$ ,  $100^\circ$  and  $73^\circ$ . [2 marks]

Answer: .....

9. Find  $y$ , giving a reason. [2 marks]



**Answer:** .....

10. Two parallel lines are crossed by a straight line. One angle is  $118^\circ$ . Work out the co-interior angle. [2 marks]

**Answer:** .....

11. Explain the difference between corresponding and alternate angles. [2 marks]

**Answer:** .....

12. Work out the sum of the interior angles of a hexagon. [2 marks]

**Answer:** .....

13. Work out one interior angle of a regular pentagon. [3 marks]

**Answer:** .....

14. Work out one exterior angle of a regular octagon. [2 marks]

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Answer: .....

15. A regular polygon has an exterior angle of  $24^\circ$ . How many sides does it have? [2 marks]

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Answer: .....

16. A regular polygon has an interior angle of  $150^\circ$ . How many sides does it have? [3 marks]

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Answer: .....

17. The interior angles of a polygon add to  $1080^\circ$ . How many sides does it have? [3 marks]

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Answer: .....

18. Explain why a regular polygon cannot have an exterior angle of  $50^\circ$ . [2 marks]

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Answer: .....

**19.** In triangle  $ABC$ , angle  $A = 2x$ , angle  $B = 3x$  and angle  $C = x + 20$ .

(a) Form an equation and solve it to find  $x$ .

[3 marks]

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(b) Work out the largest angle.

[2 marks]

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**Answer:** .....

**20.** A regular hexagon and a square share an edge.

(a) Write down one interior angle of each shape.

[2 marks]

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(b) Work out the angle between them at the shared vertex.

[2 marks]

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**Answer:** .....