

Pack A • Fluency

Answer all questions. Show your working. Questions are grouped by challenge level.

1. Two equal angles sit on a straight line. Find the size of each angle. Justify that they sum to 180° .

2. Two angles on a straight line are 65° and an unknown angle. Calculate the unknown angle. Show the subtraction and verify the pair sums to 180° .

3. Four angles meet at a point. Three of them are 90° , 80° , and 70° . Calculate the fourth angle and verify all four sum to 360° .

4. A triangle has angles 70° and 60° . Calculate the third angle and verify all three sum to 180° .

5. A quadrilateral has angles 90° , 85° , and 100° . Calculate the fourth angle and verify all four sum to 360° .

6. Two lines cross and form four angles. One angle is 43° . Calculate all four angles and check they sum to 360° .

7. An angle on a straight line measures 38° . Calculate its supplementary angle (the other angle on the straight line) and show they add to 180° .

8. An isosceles triangle has two equal base angles. The angle at the top is 40° . Calculate each base angle, showing the subtraction and division. Check your answer.

9. A pair of parallel lines is cut by a transversal. One co-interior angle is 115° . Calculate the other co-interior angle and verify both sum to 180° .

10. A pair of parallel lines is cut by a transversal. One alternate angle is 52° . State and justify the alternate angle on the other side. Then calculate the co-interior angle on the same side.

11. Find angle x . Two angles on a straight line are x and 127° .
-
12. Three angles meet at a point on a straight line: 55° , 72° , and x . Find x .
-
13. A triangle has angles x , 65° , and 48° . Find x .
-
14. An isosceles triangle has a top angle of 40° . Find each base angle.
-
15. A quadrilateral has three angles: 115° , 80° , 70° . Find the fourth angle x .
-
16. Find the exterior angle of a regular 6-sided polygon.
-
17. Find the interior angle of a regular 5-sided polygon.
-
18. Two parallel lines are cut by a transversal. A corresponding angle is 118° . Find the angle marked x on the same side of the transversal, between the parallel lines (co-interior).
-
19. Two lines cross. One angle is 68° . Find all four angles formed.
-
20. An equilateral triangle has all sides equal. What is each interior angle?
-

21. A triangle has angles x , $2x$, and 30° . Find x and the largest angle.
-
22. Two angles on a straight line are $(3x + 10)^\circ$ and $(5x - 18)^\circ$. Find x and each angle.
-
23. Two angles on a straight line are in the ratio 2 : 3. Find each angle.
-
24. A quadrilateral has angles x , $x + 20^\circ$, $2x$, and $x - 10^\circ$. Find x and each angle.
-
25. Two parallel lines are cut by a transversal. One alternate angle is $(4x - 12)^\circ$ and the other is $(2x + 18)^\circ$. Find x .
-
26. A regular polygon has 12 sides. Find its interior angle and state the name of the polygon.
-
27. A regular polygon has an exterior angle of 24° . How many sides does it have?
-
28. A protractor reading shows an angle of 143.5° . A second angle is 62.5° smaller. Find the second angle and state its type.
-
29. The exterior angle of a triangle is 115° . One of the non-adjacent interior angles is 48° . Find the other non-adjacent interior angle.
-
30. An angle is $\frac{\text{num}}{\text{den}}$ of a full turn. Find the angle in degrees and state its type.
-

31. Two parallel lines are cut by a transversal. A co-interior angle is $(5x + 8)^\circ$ and the other co-interior angle is $(3x + 4)^\circ$. Find x and both angles.
-
32. A pie chart shows three sectors. The first sector represents 40% of the data and the second represents 35%. Find the angle of the third sector.
-
33. A regular polygon has interior angles of 150° . How many sides does it have? Then find its exterior angle.
-
34. In a triangle, angle A is twice angle B, and angle C is 10° more than angle A. Find all three angles.
-
35. A triangle has angles in the ratio 1 : 2 : 3. Find each angle.
-
36. A survey asks 200 people their favourite colour. 80 choose blue, 60 choose red, and the rest choose green. Find the pie chart angle for green.
-
37. Use the formula $(n - 2) \times 180^\circ$ to find the sum of interior angles of a 7-sided polygon. Then find each interior angle if it is regular.
-
38. A triangle has angles 63.4° , 58.9° , and x° . Find x , giving your answer as a decimal.
-
39. A kite has two pairs of equal angles. The angles are x , x , 110° , and 70° . Find x .
-
40. A bearing is measured clockwise from North. A ship sails on a bearing of 250° . How many degrees short of a full turn is this? Give the reflex angle formed on the other side of North.
-