Angles and polygons - topic test

Name: _____ Date: _____

15 questions | 42 marks | 45 minutes

A by-hand review of measuring, angle relationships, polygons and shape-sorting reasoning. Start with short facts, then explain multi-step solutions.

No calculator needed.

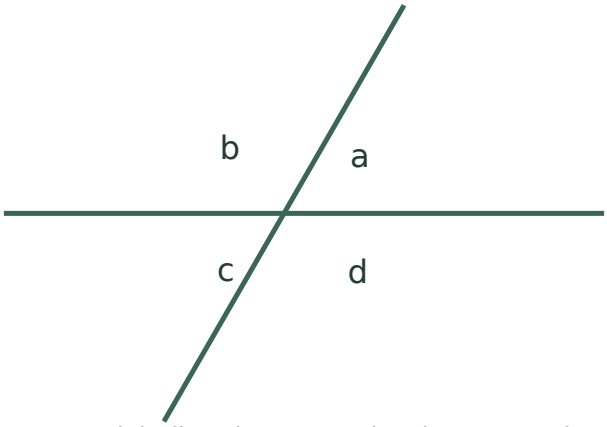
1. Classify an angle of 154 degrees. [1 mark]

2. Use a ruler and protractor to draw an angle of 38 degrees. Mark the vertex and label the angle. [2 marks]

3. Two adjacent angles on a straight line are 104 degrees and x. Find x and state the angle rule. [2 marks]

4. Four non-overlapping angles cover a full turn around a point. Three are 85, 97 and 74 degrees. Find the fourth. [2 marks]

5. Two straight lines cross as shown. Given a = 48 degrees, find the following. [3 marks]



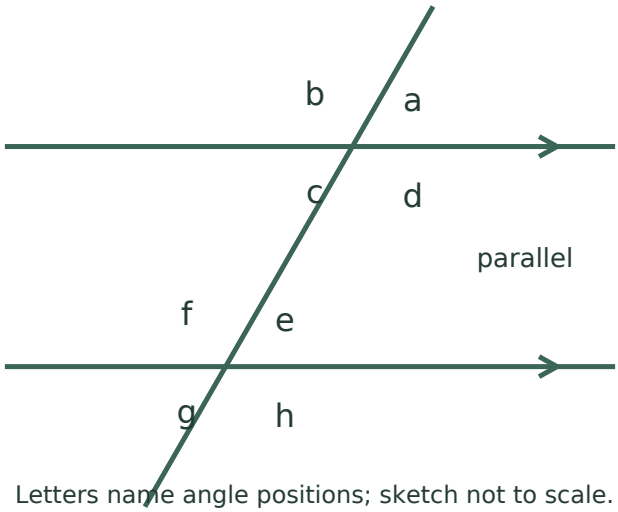
Two straight lines intersect. Sketch not to scale.

(a) Find b. [1 mark]

(b) Find c. [1 mark]

(c) Find d. [1 mark]

6. The two horizontal lines in the diagram are parallel. Given d = 126 degrees, answer each part with an angle reason. [4 marks]

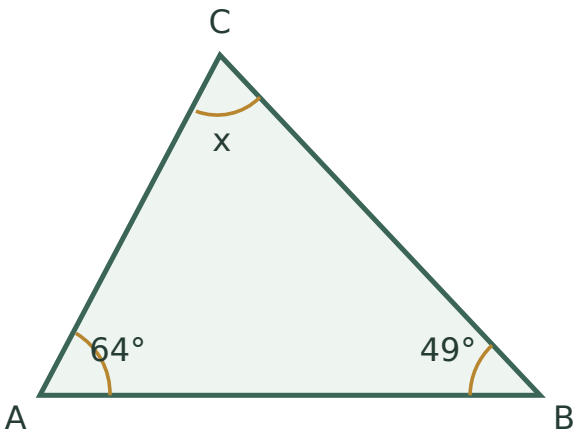


Letters name angle positions; sketch not to scale.

(a) Find f. [2 marks]

(b) Find e. [2 marks]

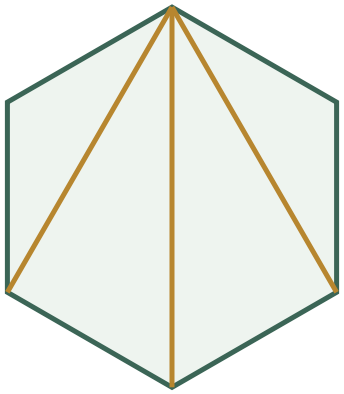
7. A triangle has two interior angles of 64 degrees and 49 degrees. Find the third. [2 marks]



Sketch not to scale

8. An isosceles triangle has vertex angle 44 degrees. Find each base angle and explain why division is needed. [3 marks]

9. Consider a regular hexagon. [4 marks]



6 sides split into 4 triangles

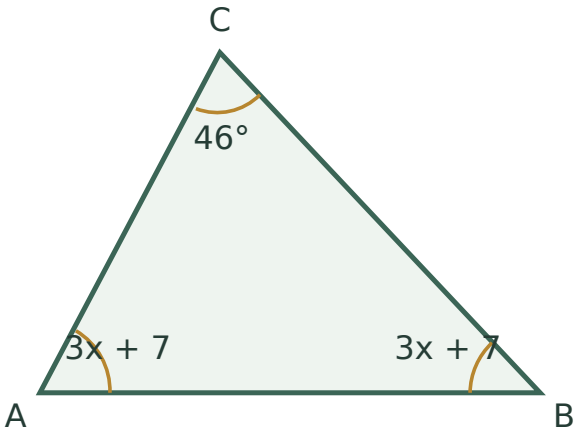
(a) Find its interior-angle sum. [2 marks]

(b) Find each interior angle. [2 marks]

10. Each interior angle of a regular polygon is 140 degrees. Find its number of sides. [3 marks]

11. A quadrilateral has four equal sides, two acute angles and two obtuse angles. Give its most specific name and explain why it is not a square. [2 marks]

12. The two equal base angles of an isosceles triangle are each $(3x + 7)^\circ$. The vertex angle is 46 degrees. Find x and the base angle size. [3 marks]



Sketch not to scale

13. Two co-interior angles on parallel lines are $(3x + 15)^\circ$ and $(2x + 20)^\circ$. Find x and both angle sizes. [4 marks]

14. A five-sided garden border has interior angles of 92, 107, 119 and 125 degrees at four corners. A paving plan needs the angle at the last corner. Calculate it. [3 marks]

15. A sorting program is used on quadrilaterals. Rule 1: if there are four right angles, output Rectangle and stop. Rule 2: otherwise, if all four sides are equal, output Rhombus and stop. Rule 3: otherwise output Other. The table gives two inputs. [4 marks]

Properties of the input quadrilaterals

Shape	Four right angles?	Four equal sides?
A	Yes	Yes
B	No	Yes

(a) What does the current program output for A? [1 mark]

(b) Repair the program so that it gives the most specific name for A. [2 marks]

(c) What does the repaired program output for B? [1 mark]