



Instructions: No answer bank: show your working for the shape maths. Number the steps in order, answer the case study questions, explain the key terms, then write full-sentence answers and plan the extended answer.

1. Shape maths (show your working)

Question	Working and answer
Angles on a line: 38° and x . Find x .	
Around a point: 72° , 115° , 98° and x . Find x .	
Two lines cross. One angle is 47° . Its vertically opposite angle is...	
How many degrees does a minute hand turn in 25 minutes?	
A reflex angle and 118° make a full turn. The reflex angle is...	

Did you know?

- Vertically opposite angles are always equal.
- The angle between the hands at 4 o'clock is $4 \times 30^\circ = 120^\circ$.
- Surveyors use a tool called a theodolite to measure angles very precisely.
- A protractor usually has two scales, one going each way.

Background

Geometry starts with a point: an exact place with no size. A line goes on forever in both directions. A line segment has two end points, like the edge of a ruler. A ray starts at one point and goes on forever in one direction, like a torch beam. Two lines that never meet, however far they go, are parallel (think of railway tracks). Two lines that meet at a square corner are perpendicular. Lines that cross at any other angle are simply intersecting.

2. Steps in order

Number the steps 1 to 6 (1 = first).

1	Centre: Put the protractor's centre mark on the vertex
2	Read: Read where the other arm crosses the scale
3	Line up: Lay the zero line along one arm
4	Check: Compare your reading with your estimate
5	Estimate: Decide if the angle is acute, right, obtuse or reflex
6	Choose scale: Use the scale that starts at 0 on that arm

4. Key terms

Key term	What does it mean? Give an example.
Vertex	
Acute angle	
Obtuse angle	
Parallel	
Perpendicular	

3. Case study

Tayo measures an angle and writes 140° . His sketch shows the angle is clearly smaller than a right angle. The arms cross the protractor at 40 on the inner scale and 140 on the outer scale.

Case study: Tayo checks his protractor reading

1. What mistake did Tayo make?

2. What is the correct size of the angle?

3. What habit would stop this mistake?

5. Think it through

1. Explain why vertically opposite angles are equal.

2. Explain how to draw a reflex angle of 290° with a 180° protractor.

6. Longer answers (full sentences)

1. Describe the five types of angle with an example size for each.

2. Explain the difference between parallel and perpendicular lines.

3. At 2 o'clock, what angle do the clock hands make and why?

4. Explain in your own words: Why do angles on a straight line add up to 180° ?

7. Extended answer

Extended answer: 'You can always measure an angle by just looking at it.' How far do you agree?

Plan: introduction · point for (example) · point against (example) · conclusion with your judgement.
