

Name _____

Date _____

Unit 5 · Angles and constructions — revision sheet

Everything you need from every section. Read it before the end-of-unit test.

5.1 A sum of 360°

- A full turn is 360° , so the angles **around a point** total 360° .
- A straight line is half a turn, so the angles **on a straight line** total 180° .
- The angles of a **triangle** total 180° .
- The angles of a **quadrilateral** total 360° — draw one diagonal and it splits into two triangles.
- To find a missing angle: add the ones you know, then subtract from the total.
- Acute $< 90^\circ$; right $= 90^\circ$; obtuse is between 90° and 180° ; reflex $> 180^\circ$.
- Check your answer is sensible: does it look about the right size in the diagram?

Key words: angle · degree ($^\circ$) · angles at a point · straight line · quadrilateral · acute angle · right angle · obtuse angle · reflex angle

$$\begin{aligned}120^\circ + 95^\circ + x &= 360^\circ \\x &= 360^\circ - 215^\circ = 145^\circ \\65^\circ + 40^\circ + y &= 180^\circ \\y &= 180^\circ - 105^\circ = 75^\circ \\140^\circ + 75^\circ + x &= 360^\circ \\215^\circ + x &= 360^\circ \\x &= 145^\circ \text{ (angles at a point)}\end{aligned}$$

5.2 Intersecting lines

- Where two straight lines cross, four angles are made.
- **Vertically opposite angles are equal** — the pairs opposite each other.
- Angles side by side lie on a straight line, so they add to 180° .
- Because of that, the four angles are a , $180-a$, a , $180-a$ — and they total 360° .
- If one angle is 90° then all four are, and the lines are **perpendicular**.
- **Parallel** lines never meet. A line crossing them is a **transversal**.
- On parallel lines, **corresponding** angles (F shape) are equal and **alternate** angles (Z shape) are equal.
- Always state the reason: “vertically opposite angles are equal”, or “angles on a straight line add to 180° ”.

Key words: intersecting lines · vertically opposite angles · perpendicular · parallel · transversal · corresponding angles · alternate angles

Four angles at a crossing
Two pairs, each pair equal
If one angle is 62°
the angle opposite it is also 62°
 a , $180-a$, a , $180-a$
Total: $2a + 2(180-a) = 360^\circ$ ✓
 90° , 90° , 90° , 90°

5.3 Drawing lines and quadrilaterals

- Measure and draw angles with a **protractor**; measure lengths with a ruler.
- Put the centre of the protractor on the vertex and one arm on a zero, then read **that same scale** round to the other arm.
- Check every reading against how the angle looks: an acute angle cannot be 130° .
- **Parallel** lines are marked with matching arrows; **perpendicular** lines with a small square.
- **Square**: four equal sides, four right angles. **Rectangle**: four right angles.
- **Rhombus**: four equal sides. **Parallelogram**: two pairs of parallel sides.
- **Trapezium**: exactly one pair of parallel sides. **Kite**: two pairs of adjacent equal sides.
- In any parallelogram, adjacent angles add to 180° and opposite angles are equal.

Key words: protractor · parallel · perpendicular · square · rectangle · rhombus · parallelogram · trapezium · kite

An angle that looks acute must read under 90°
If you read 130° for it, you used the wrong scale — it is 50°
To draw 65° : draw the base line, mark 65 on the scale, join up
→ on two lines means they are parallel
┐ in a corner means exactly 90°
square 4 equal sides, 4 right angles
rectangle 4 right angles