

1 Map scales: measuring

- a) Measure the distance from the harbour to the kiln on this map. Work out the real distance in km.
b) A café is 2.1 km from the kiln. How far is that on the map?

Kiln •

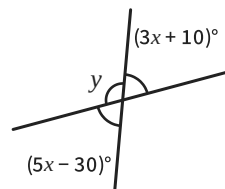
Harbour • Scale 1 : 25 000

$$\begin{aligned} \text{a) } 6 \text{ cm} \times 25\,000 &= 150\,000 \text{ cm} = 1.5 \text{ km} \\ \text{b) } 210\,000 \div 25\,000 &= 8.4 \text{ cm} \end{aligned}$$

2 Angle facts

Two straight lines cross.

- a) Work out the value of x .
b) Work out the size of angle y .



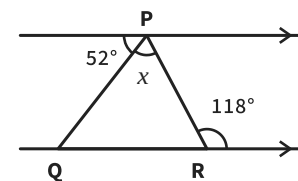
Not drawn accurately

$$\begin{aligned} \text{a) } 3x + 10 &= 5x - 30, 40 = 2x, x = 20 \\ \text{angle} &= 3 \times 20 + 10 = 70^\circ \\ \text{b) } y &= 180 - 70 = 110^\circ \end{aligned}$$

3 Angles on parallel lines

The two horizontal lines are parallel.

- a) Work out angle PQR. Give a reason.
b) Work out x . Give reasons.



Not drawn accurately

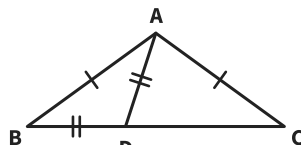
$$\begin{aligned} \text{a) } 52^\circ, \text{ alternate angles are equal} \\ \text{angle PRQ} &= 180 - 118 = 62^\circ, \text{ angles on a line} \\ \text{b) } x &= 180 - 52 - 62 = 66^\circ, \text{ angles in a triangle} \end{aligned}$$

4 Angles in isosceles triangles

$AB = AC$ and $BD = AD$.

Angle $BAC = 108^\circ$.

- a) Work out angle ABC.
b) Work out angle DAC.



Not drawn accurately

$$\begin{aligned} \text{a) } (180 - 108) \div 2 &= 36^\circ \\ \text{angle BAD} &= \text{angle ABD} = 36^\circ \\ \text{b) } 108 - 36 &= 72^\circ \end{aligned}$$

Angles and polygons

revision mat answers

Higher A

5 Angles in regular polygons

Each exterior angle of a regular polygon is 24° .

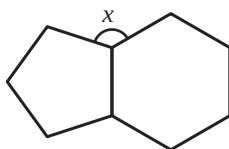
- a) How many sides does the polygon have?
b) Work out the sum of its interior angles.

$$\begin{aligned} \text{a) } 360 \div 24 &= 15 \text{ sides} \\ \text{b) } (15 - 2) \times 180 &= 2340^\circ \end{aligned}$$

6 Angles in regular polygons

A regular pentagon and a regular hexagon share a side.

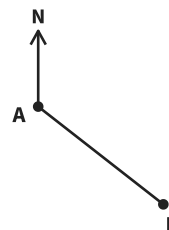
- a) Work out the interior angle of a regular pentagon.
b) Work out the size of angle x .



$$\begin{aligned} \text{a) } 540 \div 5 &= 108^\circ \\ \text{hexagon: } 720 \div 6 &= 120^\circ \\ \text{b) } 360 - 108 - 120 &= 132^\circ \end{aligned}$$

7 Bearings

- a) Measure the bearing of B from A.
b) Work out the bearing of A from B.

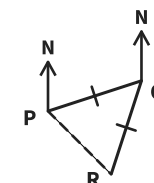


$$\begin{aligned} \text{a) } 128^\circ \\ \text{b) } 128 + 180 &= 308^\circ \end{aligned}$$

8 Bearings

A boat sails from P on a bearing of 072° to Q, then on 198° to R. $PQ = QR$.

- a) Work out angle PQR.
b) Find the bearing of R from P.



Not drawn accurately

$$\begin{aligned} \text{a) } 252 - 198 &= 54^\circ \\ (180 - 54) \div 2 &= 63^\circ \\ \text{b) } 072 + 63 &= 135^\circ \end{aligned}$$