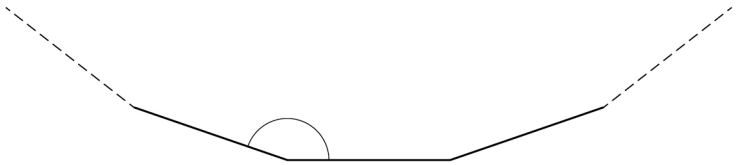
1 Part of a regular polygon with 15 sides is shown.



Not drawn accurately

Work out the size of an **interior** angle.

[2 marks]

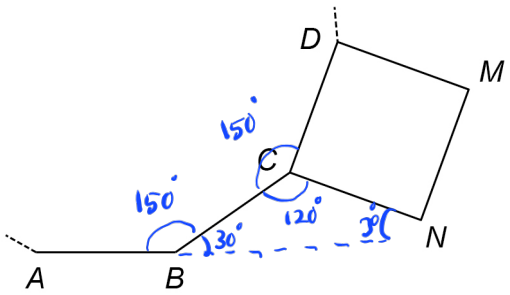
$\frac{(15-2) \times 180}{15}$ (1) $= \frac{2340}{15} = 156$

Answer 156 (1) degrees

2 *AB*, *BC* and *CD* are sides of a regular 12-sided polygon.

CDMN is a square.

Not drawn accurately



Prove that points *A*, *B* and *N* lie on a straight line.

[4 marks]

Interior angle $= 180 - \frac{360}{12} = 150°$ (1)

ABC + CBN $= 180°$

CBN $= 180° - 150° = 30°$

DCN $= 90°$ (square has 4 90° angle)

BCN $= 360° - 90° - 150°$ (1)

$= 120°$ (angles at a point add up to 360°)

BNC $= 180° - 120° - 30°$ (1)

$= 30°$ (angles in a triangle add up to 180°)

since BCN is an isosceles triangle, BC = CN $= 30°$

ABN is a straight line because $150° + 30° = 180°$ (1)

(angles on a straight line).

3 (a) Part of a regular polygon is shown.

Not drawn accurately

Assume that the polygon is an octagon.

Work out the size of an **exterior** angle.

[2 marks]

360 ÷ 8 = 135 (1)

180 − 135 = 45 (1)

Answer 45 °

3 (b) In fact, the polygon has **more** sides than an octagon.

What does this mean about the size of an exterior angle?

Tick **one** box.

[1 mark]

- ☐ It is more than the answer to part (a)
- ☐ It is the same as the answer to part (a)
- ☑ It is less than the answer to part (a) (1)
- ☐ It could be any of the above