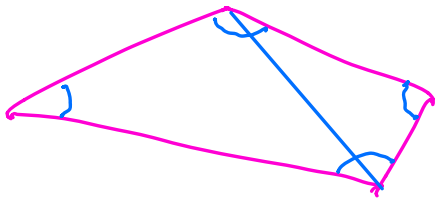
Sum of Interior Angles of a Polygon

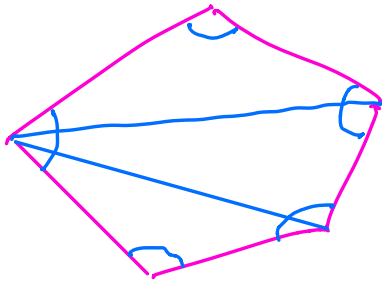
The angles of any triangle add up to 180°

Quadrilateral



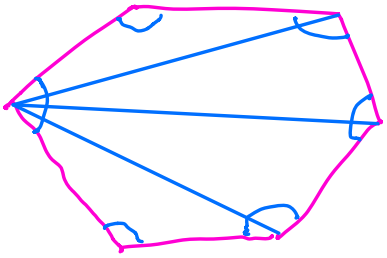
Angles add up to 2 △s = 2 x 180 = 360°

Pentagon



Angles add up to 3 △s = 3 x 180 = 540°

Hexagon

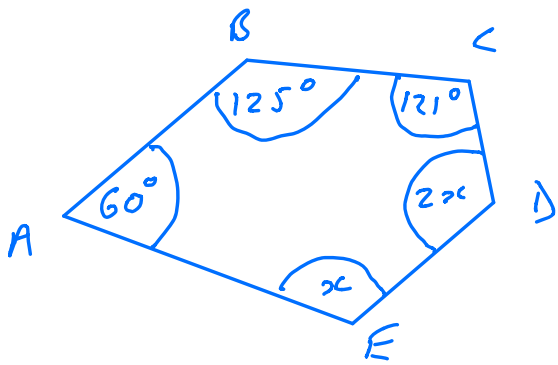


Angles add up to 4 △s = 4 x 180 = 720°

The interior angles of an n-sided polygon add up to $n-2$ Δs

$$= (n-2) \times 180^\circ$$

Typical Exam Question



Find the angles at D and E

Angles of Pentagon sum to $3 \times 180 = 540^\circ$

$$\therefore \quad 60 + 125 + 121 + 2x + x = 540^\circ$$

$$306 + 3x = 540$$

$$3x = 540 - 306$$

$$3x = 234$$

$$x = \frac{234}{3}$$

Angle E $\quad x = 78^\circ$

Angle D $\quad 2x = 2 \times 78 = 156^\circ$
