

Sum of all angles = $(n-2) \cdot 180$
 angles \uparrow
 # of Δ



Find n .

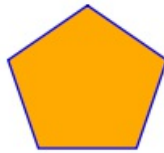
$$n+100+5n-40+6n+5n+3n+40=540$$

$$20n+100=540$$

$$\frac{20n}{20} = \frac{440}{20}$$

$$n = 22$$

Regular Pentagon

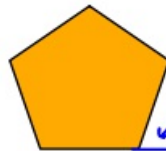


How many degrees is each angle?

$$(n-2) \cdot 180$$

$$(5-2) \cdot 180 = \frac{540}{5}$$

108°



exterior angle = $\frac{360}{n}$

How many degrees is the exterior angle of a regular decagon?

$$\text{ext. } \angle = \frac{360}{n}$$

$$\text{ext } \angle = \frac{360}{10}$$

$$\text{ext } \angle = 36^\circ$$

∴ interior ∠ is _____



By finding the exterior angle first, how many degrees is the interior angle of a regular 24-gon.

$$\text{ext } \angle = \frac{360}{24}$$

$$= 15$$



165°

$$\frac{240 + 120}{24}$$

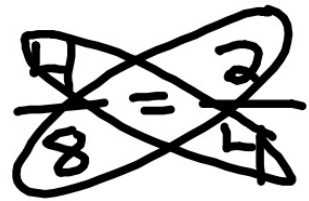
10 5

$$\frac{168}{8} \quad \frac{160}{8} \quad \frac{8}{6}$$

20 1

21

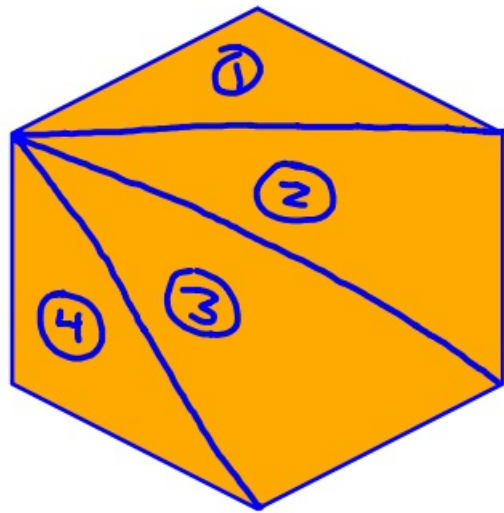
$$\frac{\text{ext } \angle}{1} = \frac{360}{n}$$



$$n = \frac{360}{\text{ext. } \angle}$$

The ext \angle is 5° . How many sides is the regular polygon?

$$\begin{aligned} n &= \frac{360}{\text{ext } \angle} \\ &= \frac{360}{5} \\ &= 72 \end{aligned}$$



$$4 \Delta \cdot 180^\circ$$
$$720^\circ$$

Sum of all \angle 's = $(n-2) \cdot 180^\circ$
in a polygon

How many degrees is in
an 82-gon?

$$(n-2) \cdot 180^\circ$$

$$80 \cdot 180^\circ$$

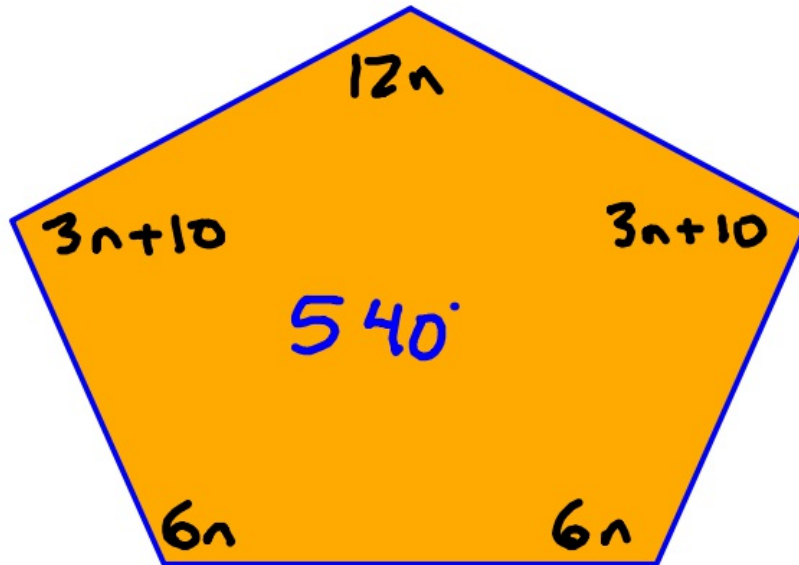
$$14400$$

How many degrees is each
angle in a regular decagon?

$$(n-2) \cdot 180 = (10-2) \cdot 180$$

$$8 \cdot 180$$

$$\frac{1440}{10} = 144^\circ$$



Find n .

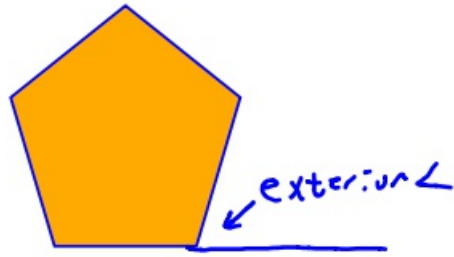
$$6n + 6n + 3n + 10 + 12n + 3n + 10 = 540$$

$$30n + 20 = 540$$

$$-20 \quad -20$$

$$\frac{30n}{30} = \frac{520}{30}$$

$$n = 17.\bar{3}$$



$$\begin{aligned} \text{ext. } \angle &= \frac{360}{n} \\ &= \frac{360}{5} \\ &= 72^\circ \end{aligned}$$

~~$$\frac{6}{8} = \frac{3}{4}$$~~

$$\frac{12}{8} = \frac{3}{2}$$

$$\frac{1}{8} = \frac{3}{24}$$

$$\frac{\text{ext. } \angle}{1} = \frac{360}{n}$$

$$n = \frac{360}{\text{ext. } \angle}$$



How many sides is the regular polygon?

$$n = \frac{360}{\text{ext. } \angle}$$

$$n = \frac{360}{18}$$

$$n = 20$$

How many degrees is the inside angle of a regular 36-gon?

$$\begin{aligned} \text{ext. } \angle &= \frac{360}{36} \\ \text{ext. } \angle &= 10 \end{aligned}$$

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