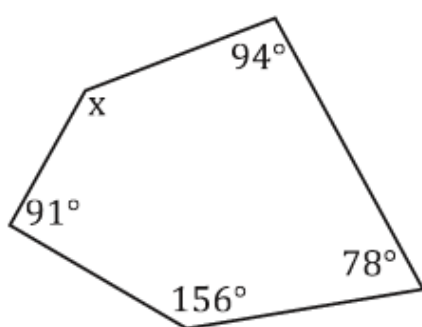


Solving for x with interior angles

find x.



Step 1. Count the sides...

$$n=5$$

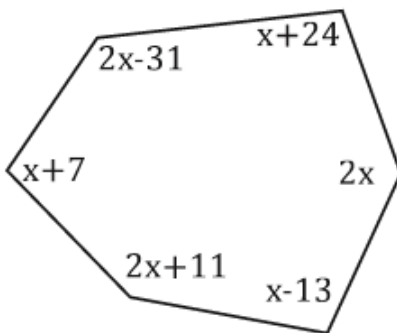
Step 2. Find the sum of the interior angles...

$$\begin{aligned} &(n-2)180^\circ \\ &(5-2)180 \\ &3*180 \\ &540^\circ \end{aligned}$$

Step 3. Set up an equation and solve...

$$\begin{aligned} 94^\circ + 78^\circ + 156^\circ + 91^\circ + x &= 540^\circ \\ 419^\circ + x &= 540^\circ \\ -419^\circ \quad -419^\circ & \\ x &= 121^\circ \end{aligned}$$

Find x.



Step 1. Count the sides...

$$n=6$$

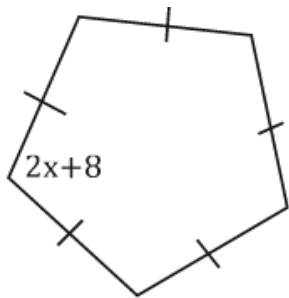
Step 2. Find the sum of the interior angles...

$$\begin{aligned} &(n-2)180^\circ \\ &(6-2)180 \\ &4*180 \\ &720^\circ \end{aligned}$$

Step 3. Set up an equation and solve...

$$\begin{aligned} x+7+2x-31+x+24+2x+x-13+2x+11 &= 720^\circ \\ 9x-2 &= 720^\circ \\ +2 \quad +2^\circ & \\ \frac{9x}{9} &= \frac{722^\circ}{9} \\ x &= 80.22 \end{aligned}$$

find x on a regular polygon.



The marked sides tell us all sides are equal because they each have the same marking.

If each side is equal... each angle is equal.

We are going to need each equations.

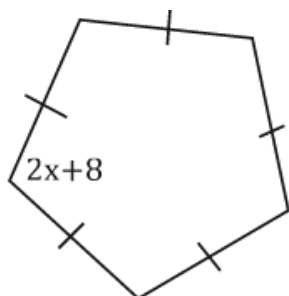
step 1: each interior angle = $\frac{(n-2)180^\circ}{n}$

5 sides $\frac{(5-2)180}{5}$
 108°

step 2: Each interior angle is 108. So look at the marked angle

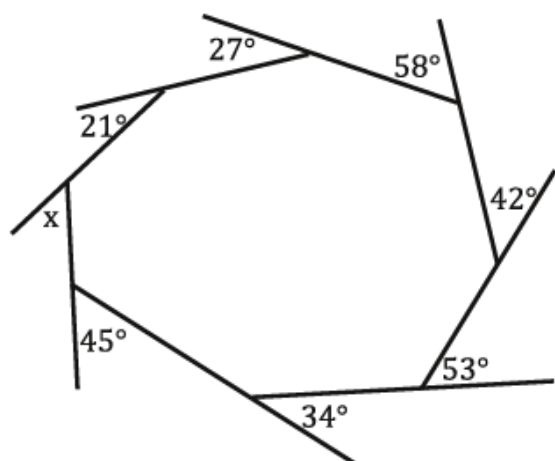
we know each angle is 108 now... one angle is also marked $2x + 8$..

so we will set that equal to the measure of the angle... 108



$$\begin{array}{r} 2x+8=108 \\ -8 \quad -8 \\ \hline 2x=100 \\ \frac{2}{2} \quad \frac{2}{2} \\ \hline x=50 \end{array}$$

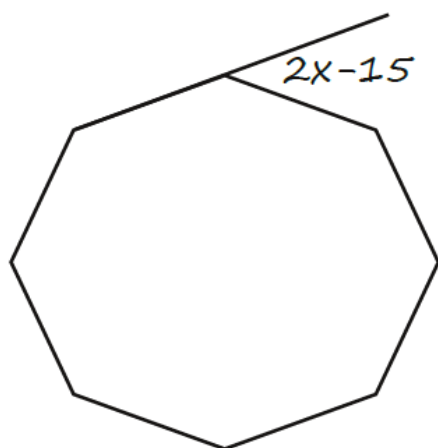
Find x using exterior angles



step 1: remember that all of them add up to 360 if they're exterior. So we do not need to count sides so... just make an equation.

$$\begin{aligned}21^\circ + 27^\circ + 58^\circ + 42^\circ + 53^\circ + 34^\circ + 45^\circ + x &= 360^\circ \\280^\circ + x &= 360^\circ \\-280^\circ \quad -280^\circ & \\x &= 80^\circ\end{aligned}$$

What if its a regular polygon



step 1: we now need to count sides.

then we need the each exterior angle

formula

$$n = 8$$

$$\text{each exterior angle} = \frac{360^\circ}{n}$$

$$\frac{360^\circ}{8}$$

$$45^\circ$$

step 2: The labeled angle with $2x - 15$ must equal 45...

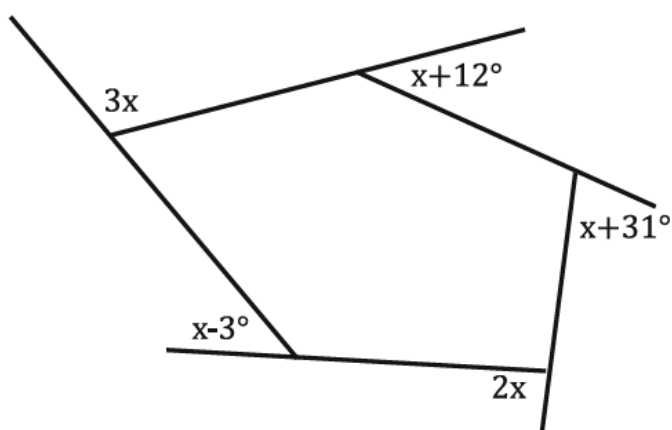
that is the equation we use

$$2x - 15^\circ = 45^\circ$$

$$+15^\circ +15^\circ$$

$$\frac{2x = 60^\circ}{2 \quad 2}$$

$$x = 30^\circ$$



If you get something like this.. since they are exterior.. make an equation and equal it to 360

$$3x + x-3 + 2x + x + 31 + x + 12 = 360$$

$$3x + x-3 + 2x + x + 31 + x + 12 = 360$$

$$8x + 40 = 360$$

$$8x + 40 = 360$$