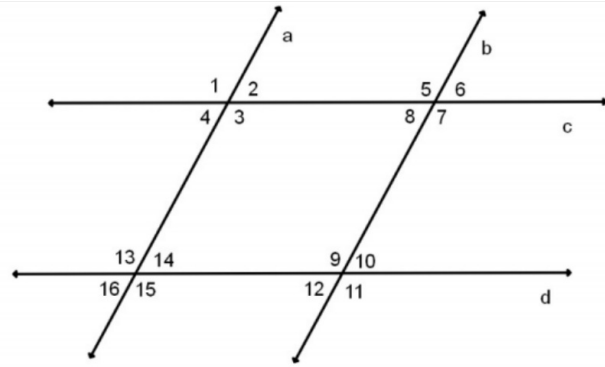


1. Given: $a \parallel b$ and $c \parallel d$

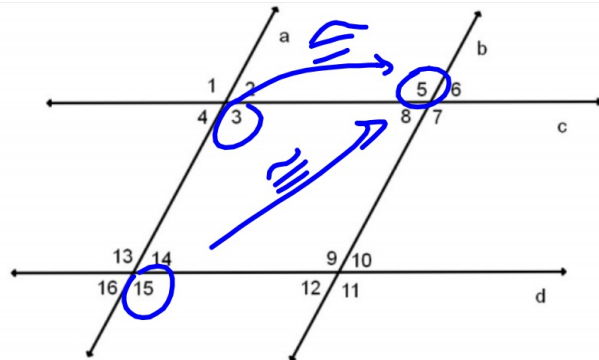
Prove: $\angle 12$ suppl to $\angle 3$



Statement	Reason
1. $a \parallel b$ and $c \parallel d$	1. Given
2. $\angle 12 \cong \angle 14$	2. alt int
3. $\angle 14$ & $\angle 3$ suppl.	3. SSI
4. $\angle 12$ & $\angle 3$ suppl.	4. subst.

2. Given: $a \parallel b$ and $\angle 5 \cong \angle 15$

Prove: $c \parallel d$



Statement	Reason
1. $a \parallel b$ and $\angle 5 \cong \angle 15$	1. Given
2. $\angle 5 \cong \angle 3$	2. Alt int
3. $\angle 3 = \angle 15$	3. subst
4. $c \parallel d$	4. conv corresp \angle 's.

3. Find the measure of one interior angle of a regular 36-gon

$$(36-2) \cdot 180 \div 36 \\ = 170^\circ$$

4. The measure of one interior angle of a regular polygon is 172.5° . Find the number of sides.

$$\frac{(n-2) \cdot 180}{n} = 172.5 \\ 180n - 360 = 172.5n \\ -360 = -7.5n \\ n = 48$$

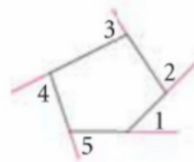
Theorem 3-15

Polygon Exterior Angle-Sum Theorem

The sum of the measures of the exterior angles of a polygon, one at each vertex, is 360.

For the pentagon,

$$m\angle 1 + m\angle 2 + m\angle 3 + m\angle 4 + m\angle 5 = 360.$$



Find the measure of each exterior angle of a regular 30-gon.

Ext:

$$\frac{360}{30} = 12^\circ$$

Int:

$$168^\circ$$
$$(30-2) \cdot 180$$

Find the number of sides that a regular polygon must have if each exterior angle equals 8°

$$\begin{aligned} \text{Ext} &= 8^\circ \\ \frac{(n-2) \cdot 180}{n} &= 172 \quad \frac{360}{8} = 45 \text{ sides} \\ \text{Int} &= 172^\circ \end{aligned}$$

The measure of each interior angle of a regular polygon is 160° . Find the number of sides.

$$\begin{aligned} \text{Int:} \\ \frac{(n-2) \cdot 180}{n} &= 160 \\ 180n - 360 &= 160n \\ -360 &= -20n \\ n &= 18 \end{aligned}$$

$$\begin{aligned} \text{Ext:} \\ 20^\circ \end{aligned}$$

Can the measure of each exterior angle of a regular polygon have a measure of a 15° ?

$$\frac{360}{15} = 24 \quad \text{Yes.}$$

Can the measure of each exterior angle of a regular polygon have a measure of a 21° ?

$$\frac{360}{21} = 17.14$$

Can the measure of each interior angle of a regular polygon have a measure of 155° ?

$$\text{Ext} = 25^\circ$$

$$\text{No } \frac{360}{25} = 14.4$$

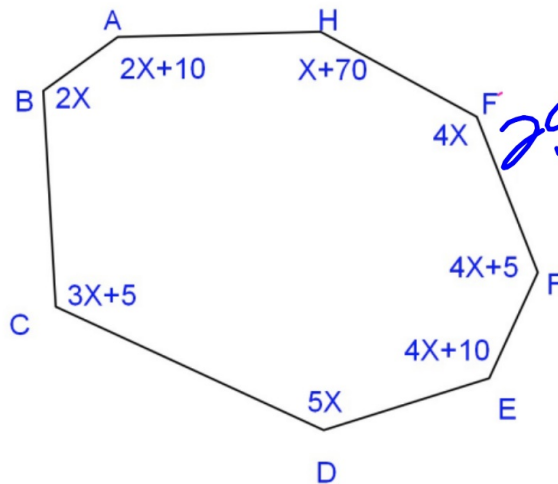
Can the measure of each interior angle of a regular polygon have a measure of 168° ?

$$\frac{360}{12} = 30 \leftarrow \text{ext}$$

Find the measure of each interior angle of a regular 40-gon.

$$\frac{(40-2) \cdot 180}{40} = 171$$

Find the value of x .



$$\begin{aligned} (8-2) \cdot 180 \\ 25X+100 &= 1080 \\ 25X &= 980 \\ X &= 39.2 \end{aligned}$$

Hwk #19 - due Wednesday

Sect. 3.5

Pages: 161-162

Problems: #11, 12, 15, 18-20, 23, 33, 40, 41

IXL #10 - G.1 & G.2 due Friday at 4pm!