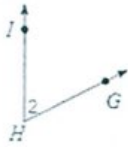


1. Name the angle four different ways.



$\angle IHG$ ,  $\angle GH I$ ,  $\angle H$ ,  $\angle 2$

2. Identify the special angle pair shown. Tell whether they are congruent or supplementary.

a) **Corresponding congruent**



b) **Alternate Interior congruent**



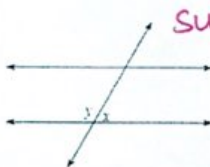
c) **Alternate Exterior congruent**



d) **Same side Interior supplementary**



e) **Linear Pair supplementary**

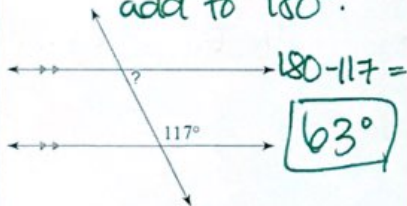


f) **Vertical Angles congruent**

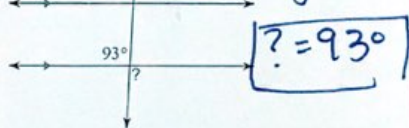


3. Find the measure of each angle indicated. Justify your answer.

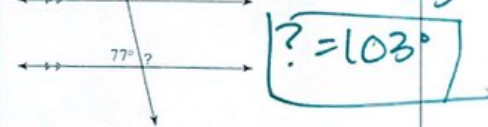
a) **Same Side Interior add to  $180^\circ$ .**



b) **Vertical Angles are congruent**

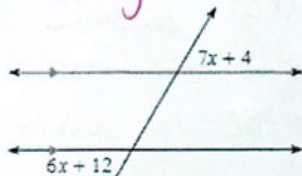


c) **Linear Pair =  $180^\circ$**   
 $180^\circ - 77^\circ = 103^\circ$



4. Write an equation and solve for x. Justify your answer.

a) **Alternate Exterior  $\angle$ s are congruent**



$$7x + 4 = 6x + 12$$

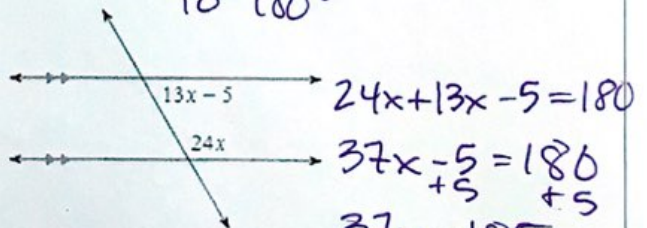
$$\begin{array}{r} -6x \\ -4 \end{array} \quad \begin{array}{r} -6x \\ -4 \end{array}$$

$$x + 4 = 12$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$$x = 8$$

b) **Same side interior add to  $180^\circ$**



$$24x + 13x - 5 = 180$$

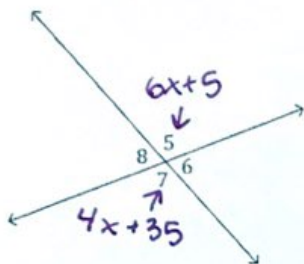
$$37x - 5 = 180$$

$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$\frac{37x}{37} = \frac{185}{37}$$

$$x = 5$$

5. Given that lines  $m$  and  $n$  intersect as shown below and  $m\angle 5 = 6x + 5$  and  $m\angle 7 = 4x + 35$



a) Write an equation and solve for  $x$ .

$$6x + 5 = 4x + 35$$

$$\begin{array}{r} 6x + 5 = 4x + 35 \\ -4x \quad -5 \\ \hline 2x = 30 \\ \frac{2x}{2} = \frac{30}{2} \\ \hline x = 15 \end{array}$$

b) What is  $m\angle 8$ ?

$$\angle 5 = 6(15) + 5 = 95$$

$$180 - 95 = 85^\circ$$

$$m\angle 8 = 85^\circ$$

6. Use the picture to answer the following questions. Assume lines that appear to be parallel are parallel.

a) If  $m\angle 6 = 50$ , then find  $m\angle 11$ .

$$180 - 50 = 130$$

b) If  $m\angle 2 = 70$ , then find  $m\angle 6$ .

$$\angle 6 = 70$$

c) If  $m\angle 1 = 130$ , then find  $m\angle 5$ .

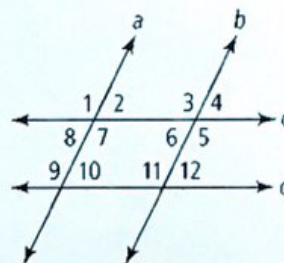
$$\angle 5 = 130$$

d) If  $\angle 7 = 110$ , then find  $m\angle 10$ .

$$180 - 110 = 70$$

e) If  $m\angle 4 = 45$ , then find  $m\angle 12$ .

$$\angle 12 = 45$$



7. Write a two column proof for each of the following.

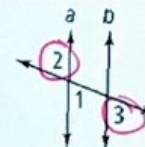
Given:  $4(2x - 3) = 36$

Prove:  $x = 6$

Statement	Reason
1. $4(2x - 3) = 36$	1. Given
2. $8x - 12 = 36$	2. Distribution
3. $8x = 48$	3. Addition
4. $x = 6$	4. Division

Given:  $a \parallel b$

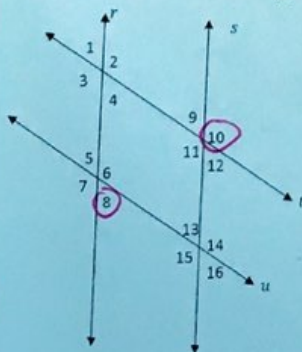
Prove:  $\angle 2 \cong \angle 3$



Statement	Reason
1. $a \parallel b$	1. Given
2. $\angle 2 \cong \angle 3$	2. Alternate Exterior

Given:  $r \parallel s$  and  $t \parallel u$

Prove:  $\angle 10$  and  $\angle 8$  are supplementary.



Statement	Reason
1. $r \parallel s, t \parallel u$	1. Given
2. $\angle 10 \cong \angle 15$	2. Alternate Exterior $\angle$ 's
3. $\angle 8 + \angle 15 = 180^\circ$	3. Same Side Interior
4. $\angle 8 + \angle 10 = 180^\circ$	4. Substitution