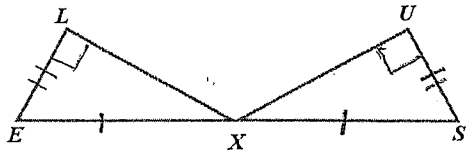


1. **Given:** X is a midpoint of \overline{ES}
 $\angle L$ and $\angle U$ are right angles
 $\overline{LE} \cong \overline{US}$
Prove: $\triangle XLE \cong \triangle XUS$



X is midpt. of \overline{ES}

$$\overline{EX} \cong \overline{SX}$$

$\angle L$ and $\angle U$ are right angles

$$\overline{LE} \cong \overline{US}$$

$$\triangle XLE \cong \triangle XUS$$

| Statements | Reasons |
|--|--------------------------|
| $\overline{EX} \cong \overline{SX}$ | Given def of midpoint |
| $\angle L$ and $\angle U$ are right angles | Given |
| $\overline{LE} \cong \overline{US}$ | Given |
| $\triangle XLE \cong \triangle XUS$ | HL (Hypotenuse Leg) |

2. For each problem a – e, fill in the correct type of angles from the list of choices. Use each answer once.

Choices: $\angle 1$ and $\angle 2$ are...

Vertical Angles

A Linear Pair

Complementary **and** Adjacent

Complementary **not** Adjacent

Supplementary **not** Adjacent

a.
Complementary and Adjacent

b.
Vertical Angles

c. $m\angle 1 = 60^\circ$ and $m\angle 2 = 120^\circ$

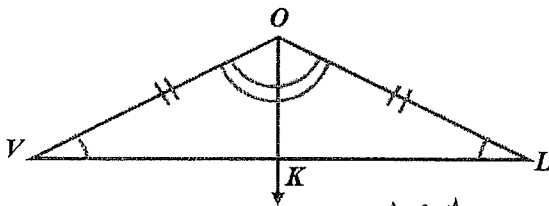
Supplementary not Adjacent

d. $m\angle 1 = 60^\circ$ and $m\angle 2 = 30^\circ$

Complementary not Adjacent

e.
Linear Pair

3. Describe why K is the midpoint of \overline{VL} .

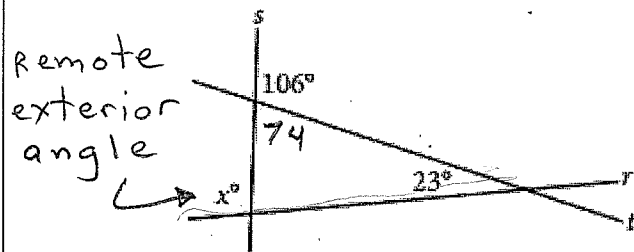


$\triangle VOK \cong \triangle LOK$ by ASA or SAS

$\overline{VK} \cong \overline{LK}$ because all parts of $\cong \triangle s$ are congruent

So, K is midpoint of \overline{VL}

4. Intersecting lines r , s , and t are shown below.



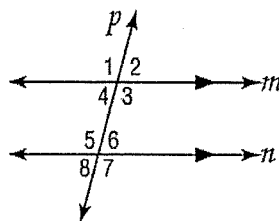
What is the value of x ?

$$x = 74 + 23$$

$$x = 97$$

5. Fill in the blank to make the statement true.

- $\angle 4$ and $\angle 6$ are alternate interior angles.
- $\angle 3$ and $\angle 6$ are same-side interior angles.
- $\angle 7$ and $\angle 3$ are corresponding angles.
- $\angle 7$ and $\angle 1$ are alternate exterior angles.
- $\angle 8$ and $\angle 6$ are vertical angles.
- $\angle 1$ and $\angle 2$ are a linear pair.

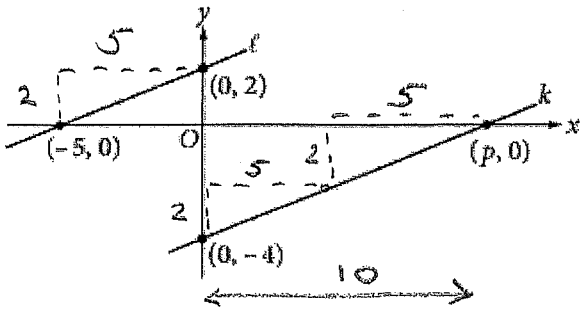


6. Give a counterexample:

If you have 25 cents, then you have two dimes and a nickel.

- A quarter
or
- 25 pennies

↑
or $\angle 4$



In the xy -plane above, line l is parallel to line k . What is the value of p ?

- A) 4
- B) 5
- C) 8
- D) 10**

$$y = \frac{2}{5}x - 4$$

$$0 = \frac{2}{5}x - 4$$

$$4 = \frac{2}{5}x$$

$$x = 10$$

8.

$$m = \frac{2}{3}$$

$$-2x + 3y = 6$$

$$3y = \frac{2x}{3} + 6$$

$$y = \frac{2}{9}x + 2$$

In the xy -plane, the graph of which of the following equations is perpendicular to the graph of the equation above?

A) $3x + 2y = 6$

B) $3x + 4y = 6$

C) $2x + 4y = 6$

D) $2x + 6y = 3$

$$2y = -3x + 6$$

$$y = \frac{-3}{2}x + 3$$

$$4y = -3x + 6$$

$$y = \frac{-3}{4}x + \frac{3}{2}$$

$$4y = -2x + 6$$

$$y = \frac{-2}{4}x + \frac{6}{4}$$

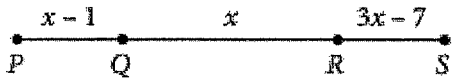
$$6y = -2x + 3$$

$$y = \frac{-2}{6}x + \frac{3}{6}$$

$$y = \frac{-1}{2}x + \frac{3}{2}$$

$$y = \frac{-1}{3}x + \frac{1}{2}$$

9.



Note: Figure not drawn to scale.

On \overline{PS} above, $PQ = RS$. What is the length of \overline{PS} ?

$$x - 1 = 3x - 7$$

$$x + 6 = 3x$$

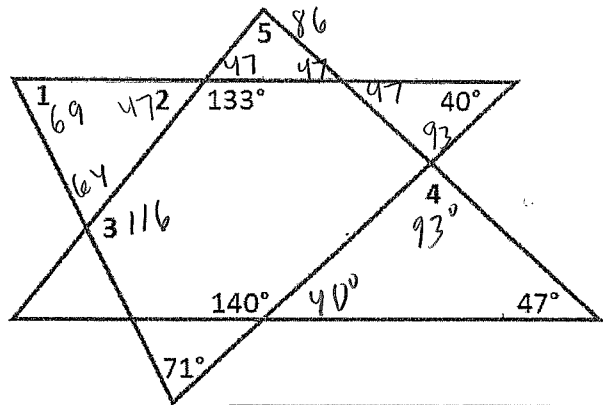
$$6 = 2x$$

$$3 = x$$

$$PS = 3 - 1 + 3 + 3 \cdot 3 - 7$$

$$PS = 5 + 9 - 7 = \boxed{7}$$

10. Find the measure of each numbered angle:



$$m\angle 1 = 69^\circ$$

$$m\angle 4 = 93^\circ$$

$$m\angle 2 = 47^\circ$$

$$m\angle 5 = 86^\circ$$

$$m\angle 3 = 116^\circ$$



11. Find the equation of the line that passes through $(-12, 32)$ and $(18, 7)$. Show work with point slope formula. Leave final answer in slope intercept form. Use the graph only to check the reasonableness of your work.

$$m = \frac{7 - 32}{18 - (-12)} = \frac{-25}{30} = \frac{-5}{6}$$

$$y - 7 = \frac{-5}{6}(x - 18)$$

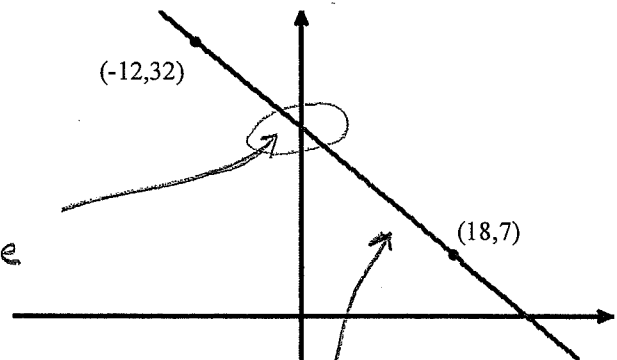
$$y - 7 = \frac{-5}{6}x + 15$$

$$+7$$

$$+7$$

$$y = \frac{-5}{6}x + 22$$

b is positive



m is negative