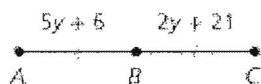


1. Solve and write a justification for each step.

a) $\frac{x+3}{-2} = 8$ **Given**
 $x+3 = -16$ **Mult. POE**
 $x = -19$ **Subtr. POE**

b) $2p-30 = -4p+6$ **Given**
 $6p-30 = 6$ **Add. POE**
 $6p = 36$ **Add. POE**
 $p = 6$ **Divi. POE**

2. Write a justification for each step:



1. $AB = BC$
2. $5y + 6 = 2y + 21$
3. $3y + 6 = 21$
4. $3y = 15$
5. $y = 5$

1. **Def. of \cong Seg.**
2. **Substitution**
3. **Subtr. POE**
4. **Subtr. POE**
5. **Divi. POE**

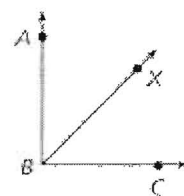
3. Identify the property that justifies each statement:

- a) $\overline{KL} \cong \overline{PR}$, so $\overline{PR} \cong \overline{KL}$ **Symm. POE**
- b) $412 = 412$ **Reflex. POE**
- c) If $a = b$ and $b = 0$, then $a = 0$ **Trans. POE**

4. Write a justification for each step, given that \overline{BX} bisects $\angle ABC$ and $m\angle XBC = 45^\circ$

1. **Given**
2. **Def. of \angle bisector**
3. **Def. of \cong \angle s.**
4. **Given**
5. **Substitution**
6. **\angle Add. Postulate**
7. **Substitution**
8. **Simplify**
9. **Def. of right \angle .**

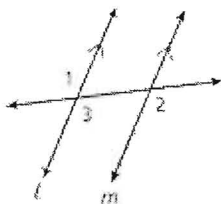
1. \overline{BX} bisects $\angle ABC$.
2. $\angle ABX \cong \angle XBC$
3. $m\angle ABX = m\angle XBC$
4. $m\angle XBC = 45^\circ$
5. $m\angle ABX = 45^\circ$
6. $m\angle ABX + m\angle XBC = m\angle ABC$
7. $45^\circ + 45^\circ = m\angle ABC$
8. $90^\circ = m\angle ABC$
9. $\angle ABC$ is a right angle.



5. Complete the two-column proof:

Given: $l \parallel m$

Prove: $\angle 1 \cong \angle 2$



Statements:	Reasons:
1. $l \parallel m$	Given
2. $\angle 1 \cong \angle 3$	Vertical Angles Theorem
3. $\angle 3 \cong \angle 2$	Corresponding \angle s.
4. $\angle 1 \cong \angle 2$	Trans. POE

Write the converse of each statement below.

a) If an orange is red inside, then it is called a blood orange.

If an orange is called a blood orange, then it is red inside.

b) If a tree loses its leaves in winter, then it is deciduous.

If a tree is deciduous, then it loses its leaves in winter.

In the figure, $m\angle 2 = 70^\circ$. Find the measure of each angle.

1. $\angle 3$ 70°

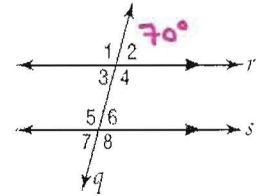
2. $\angle 5$ 110°

3. $\angle 8$ 110°

4. $\angle 1$ 110°

5. $\angle 4$ 110°

6. $\angle 6$ 70°



Classify the angle pair described. Then tell whether they would be CONGRUENT or SUPPLEMENTARY.

7. $\angle 1, \angle 8$

Alt. Ext., congruent

8. $\angle 3, \angle 6$

Alt. Int., congruent

9. $\angle 4, \angle 6$

Same-Side Int., Supp.

10. $\angle 3, \angle 7$

Corresp., congruent

11. $\angle 2, \angle 6$

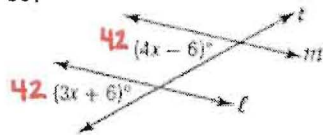
Corresp., congruent

12. $\angle 3, \angle 5$

Same-Side Int., Supp.

Find x so that $l \parallel m$. Identify the postulate or theorem you used.

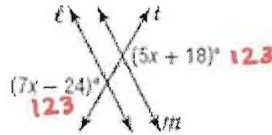
13.



$3x + 6 = 4x - 6$
 $12 = x$

Converse
 Corresponding
 \angle s.

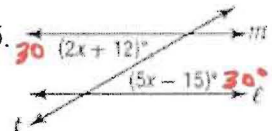
14.



$7x - 24 = 5x + 18$
 $2x = 42$
 $x = 21$

Converse
 Alt. Ext.
 \angle s.

15.

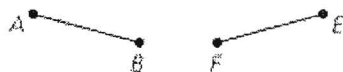


$2x + 12 = 5x - 15$
 $27 = 3x$
 $9 = x$

Converse
 Alt. Int.
 \angle s

Use the given plan to write a two-column proof of the Symmetric Property of Congruence.

Given: $\overline{AB} \cong \overline{EF}$
 Prove: $\overline{EF} \cong \overline{AB}$



Statements	Reasons
1. $\overline{AB} \cong \overline{EF}$	Given
2. $AB = EF$	Def. of \cong seg.
3. $EF = AB$	Symmetric POE
4. $\overline{EF} \cong \overline{AB}$	Def. of \cong seg.