H. Geometry Topic 4 Review

Reasoning in Algebra
***Be able to identify the steps in a proof using the Properties of Equality.**
***Be able to identify properties of equality or congruence if given a statement.**
***Be able to complete missing steps using the properties of equality or congruence.**

Name each property being used.

1. $\overline{AB} \cong \overline{AB}$

2. If x = 2 and x = y, then y = 2.

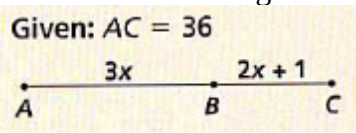
3. If x = 3 and 2x + 7 = 4y, then 2(3) + 7 = 4y.

4. If $\angle A \cong \angle B$, then $\angle B \cong \angle A$

5. Which of the following is an example of the Reflexive Property of Equality?

- If $x = -2$, then $x + 4 = -2 + 4$.
- $x - 2 = x - 2$
- If $y = x + 4$, then $x + 4 = y$.
- If $x - 2 = y$ and $y = 4$, then $x - 2 = 4$.

6. Fill in the missing information in the proof below.



Statements	**Justifications**
1. AB + BC = AC	1. _____
2. _____	2. Substitution
3. 5x + 1 = 36	3. _____
4. _____	4. Subtraction Property of Equality
5. x = _____	5. _____

Use the given property to complete each statement.

7. Addition Property of Equality
If x = 5, then x + 3 = _____

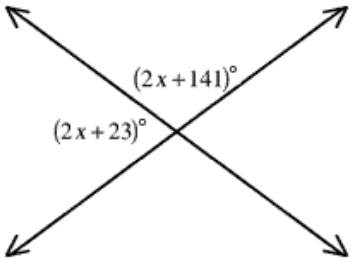
8. Division Property of Equality
If 2(AX) = 4(BY), then AX = _____

9. Distributive Property
2(4x + 5) = _____

10. Transitive Property of Congruence
If $\angle B \cong \angle T$ and $\angle B \cong \angle Y$, then _____

Proving Angles Congruent
***Be able to use the theorems in this section to find missing angle measures in diagrams.**

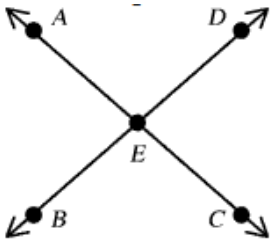
1. Find the value of x.



2. Supplementary angles are two angles whose measures have sum _____.
Complementary angles are two angles whose measures have sum _____.

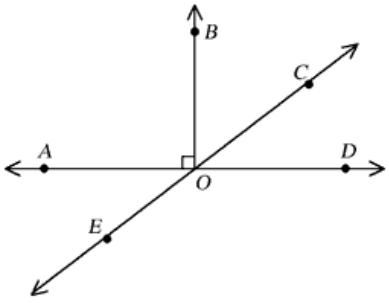
- 90; 180
- 180; 90
- 90; 45
- 180; 360

3. In the figure below, $m\angle AED = 97°$. Which statement is false?



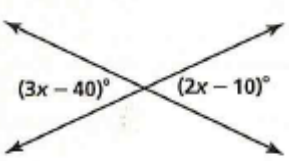
- $m\angle AEB = 83$
- $m\angle BEC = 97$
- $\angle AEB$ and $m\angle DEC$ are congruent angles.
- $\angle BEC$ and $m\angle CED$ are vertical angles.

4. Name an angle complementary to $\angle COD$.



In questions 5 - 7 below, find the values of the variables.

5.



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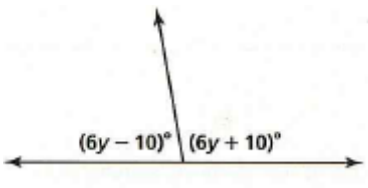

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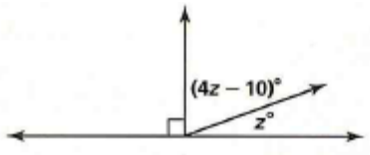
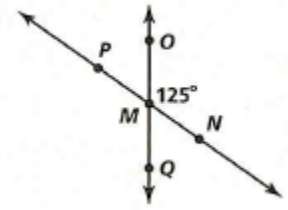


Write three conclusions that can be drawn from each diagram.

8.



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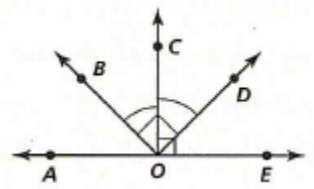
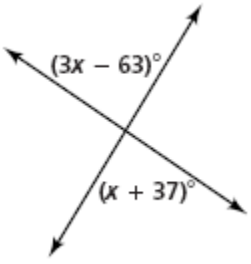
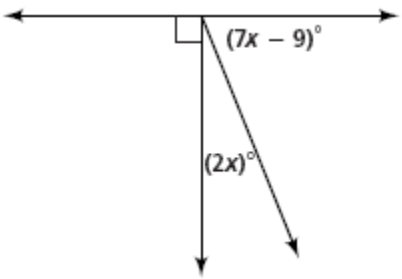


For 1 and 2, find the value of x.

1. x = _____



2. x = _____



3. Fill in the missing information for the algebraic proof below.

Statements	**Justifications**
1) $0.5(4x-14)+3=6$	1) Given
2) 2x – 7 + 3 = 6	2) _____
3) _____	3) Simplify like terms
4) 2x = 10	4) _____
5) _____	5) Division Property of Equality

4. Write a statement below that uses the Reflexive Property of Congruence.

For questions 5 – 7, use the given property to complete each missing statement.

5. Addition Property of Equality

If $4x - 3 = 10$, then _____

6. Transitive Property of Congruence

If $\angle TQM \cong \angle X$ and $\angle X \cong \angle LTS$, then _____

7. Multiplication Property of Equality

If $\frac{1}{2}x = 6$, then _____