

# Geometry 1-2 Assignment

Name \_\_\_\_\_

## ***Properties of Equality & Congruence***

Date \_\_\_\_\_ Period \_\_\_\_\_

**Name the property illustrated below.**

1. If  $UV = KL$  and  $KL = 6$ , then  $UV = 6$ .

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2. If  $m\angle 1 + m\angle 2 = m\angle 4 + m\angle 2$ , then  $m\angle 1 = m\angle 4$

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3.  $\angle ABC \cong \angle ABC$

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4. If  $\frac{1}{2}m\angle D = 45$ , then  $m\angle D = 90$ .

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5. If  $\angle DEF \cong \angle HJK$ , then  $\angle HJK \cong \angle DEF$

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6. If  $y = 12 - x$  and  $2x + 3y = 10$ , then  $2x + 3(12 - x) = 10$ .

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7. If  $x = 5$ , then  $x + 3 = 8$

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8. If  $AB = MN$  and  $MN = XY$ , then  $AB = XY$ .

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9. If  $2(AX) = 2(BY)$ , then  $AX = BY$

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10. If  $m\angle 1 = 40$  and  $m\angle 2 = m\angle 1 + 50$ , then  $m\angle 2 = 90$

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Use the given property to complete each statement.

11. Reflexive Property of Congruence

$$\angle TRS \cong \underline{\hspace{2cm}}$$

12. Substitution Property

$$\text{If } AB = 2, \text{ and } AC = AB + BC, \text{ then } AC = \underline{\hspace{2cm}}$$

13. Subtraction Property of Equality

$$\text{If } 25x + 12 = 32, \text{ then } 25x = \underline{\hspace{2cm}}$$

14. Transitive Property of Equality

$$\text{If } RM = OP \text{ and } OP = XT, \text{ then } \underline{\hspace{2cm}}$$

15. Symmetric Property of Congruence

$$\text{If } \angle TES \cong \angle BKC, \text{ then } \underline{\hspace{2cm}}$$

16. Division Property of Equality

$$\text{If } 4m\angle ABC = 120^\circ, \text{ then } m\angle ABC = \underline{\hspace{2cm}}$$

Fill in the reason that justifies each step.

**Given:**  $AC = 36$



$$AB + BC = AC \quad 17. \underline{\hspace{10cm}}$$

$$3x + 2x + 1 = 36 \quad 18. \underline{\hspace{10cm}}$$

$$5x + 1 = 36 \quad 19. \underline{\hspace{10cm}}$$

$$5x = 35 \quad 20. \underline{\hspace{10cm}}$$

$$x = 7 \quad 21. \underline{\hspace{10cm}}$$

Solve the equation and state the reason for each step.

$$5(2x - 1) = 9x + 4$$