

Name Key

Geometry

Reasoning in Algebra Worksheet

Use each property of equality or congruence to complete each statement

1. Symmetric Property: If  $\angle DEF \cong \angle GHI$ , then  $\angle GHI \cong \angle DEF$
2. Transitive Property: If  $AB + CD = EF$  and  $EF = GH$ , then  $AB + CD = GH$
3. Substitution Property: If  $m\angle 1 - m\angle 2 = 90$  and  $m\angle 2 = m\angle 4$ , then  $m\angle 1 - m\angle 4 = 90$
4. Reflexive Property:  $m\angle WXY =$   $m\angle WXY$
5. Addition Property: If  $MN = RS$  and  $AB = CD$ , then \_\_\_\_\_
6. Subtraction Property: If  $m\angle 1 + 45 = m\angle 5 + 45$ , then  $m\angle 1 = m\angle 5$
7. Multiplication Property: If  $\frac{1}{5}CD = 15$ , then  $CD = 75$
8. Division Property: If  $3m\angle JKL = 99$ , then  $m\angle JKL = 33$
9. Symmetric Property: If  $AB = YU$ , then  $YU = AB$
10. Symmetric Property: If  $\angle H \cong \angle K$ , then  $\angle K \cong \angle H$
11. Reflexive Property:  $\angle PQR \cong$   $\angle PQR$
12. Distributive Property:  $3(x - 1) = 3x -$   $3$
13. Substitution Property: If  $LM = 7$  and  $EF + LM = NP$ , then  $EF + 7 = NP$
14. Transitive Property: If  $\angle XYZ \cong \angle AOB$  and  $\angle AOB \cong \angle WYT$ , then  $\angle XYZ \cong \angle WYT$

Name the property of equality or congruence that justifies going from the first statement to the second statement.

15.  $2x + 1 = 7$   
 $2x = 6$

Subtraction  
Prop of =

16.  $5x = 20$   
 $x = 4$

Division Prop  
of =

17.  $\overline{ST} \cong \overline{QR}$   
 $\overline{QR} \cong \overline{ST}$

Symmetric Prop

18.  $AB - BC = 12$   
 $AB = 12 + BC$

Addition Prop of =