

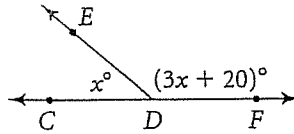
Geometry (H)
Section 2.2 – Properties of Algebra
Homework

Name: KEY

Algebra Fill in the reason that justifies each step.

1. Solve for x .

$$\begin{aligned} m\angle CDE + m\angle EDF &= 180 & \text{a. ?} \\ x + (3x + 20) &= 180 & \text{b. ?} \\ 4x + 20 &= 180 & \text{c. ?} \\ 4x &= 160 & \text{d. ?} \\ x &= 40 & \text{e. ?} \end{aligned}$$

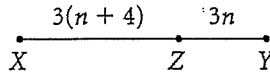


- A) Angle addition postulate
B) ~~Addition~~ property
Substitution
C) ~~Addition~~ Prop. Substitution
D) Subtraction Prop
E) Division Prop

2. Solve for n .

Given: $XY = 42$

$$\begin{aligned} XZ + ZY &= XY & \text{a. ?} \\ 3(n + 4) + 3n &= 42 & \text{b. ?} \\ 3n + 12 + 3n &= 42 & \text{c. ?} \\ 6n + 12 &= 42 & \text{d. ?} \\ 6n &= 30 & \text{e. ?} \\ n &= 5 & \text{f. ?} \end{aligned}$$



- A) SEGMENT ADDITION Postulate
b) Substitution Prop
c) Distributive Prop
d) Substitution
e) Subtraction Prop
f) Division Prop

3. $\frac{1}{2}x - 5 = 10$	Given	4. $5(x + 3) = 4$	Given
$2(\frac{1}{2}x - 5) = 20$	a. ? Multiplication	$5x + 15 = -4$	a. ? Distributive
$x - 10 = 20$	b. ? Distribution	$5x = -19$	b. ? Subtraction
$x = 30$	c. ? Addition	$x = -\frac{19}{5}$	c. ? Division

Name the property that justifies each statement.

5. $\angle Z \cong \angle Z$ Reflexive
6. $2(3x + 5) = 6x + 10$ Distributive
7. If $12x = 84$, then $x = 7$. Division
8. If $\overline{ST} \cong \overline{QR}$, then $\overline{QR} \cong \overline{ST}$. Symmetric
9. If $m\angle A = 15$, then $3m\angle A = 45$. Multiplication
10. $XY = XY$ Reflexive
11. If $3x + 14 = 80$, then $3x = 66$. Subtract
12. If $KL = MN$, then $MN = KL$. Symmetric
13. If $2x + y = 5$ and $x = y$, then $2x + x = 5$. Substitution
14. If $AB - BC = 12$, then $AB = 12 + BC$. Addition
15. If $\angle 1 \cong \angle 2$ and $\angle 2 \cong \angle 3$, then $\angle 1 \cong \angle 3$. Transitive

Use the given property to complete each statement.

16. Addition Property of Equality
If $2x - 5 = 10$, then $2x = ?$ 15
17. Subtraction Property of Equality
If $5x + 6 = 21$, then $? = 15$. 5X
18. Symmetric Property of Equality
If $AB = YU$, then $? = AB$. YU = AB
19. Symmetric Property of Congruence
If $\angle H \cong \angle K$, then $? \cong \angle H$. $\angle K$
20. Reflexive Property of Congruence
 $\angle PQR \cong ?$ $\angle PQR$
21. Distributive Property
 $3(x - 1) = 3x - ?$ 3
22. Substitution Property
If $LM = 7$ and $EF + LM = NP$, then $? = NP$. $\rightarrow EF + 7 = NP$
23. Transitive Property of Congruence
If $\angle XYZ \cong \angle AOB$ and $\angle AOB \cong \angle WYT$, then $? \cong \angle WYT$. $\angle XYZ \cong \angle WYT$