

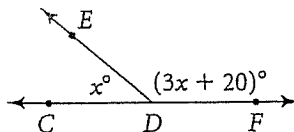
Geometry (H)
Section 2.2 – Properties of Algebra
Homework

Name: _____

Algebra Fill in the reason that justifies each step.

1. Solve for x .

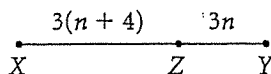
$m\angle CDE + m\angle EDF = 180$	a. <u>?</u>
$x + (3x + 20) = 180$	b. <u>?</u>
$4x + 20 = 180$	c. <u>?</u>
$4x = 160$	d. <u>?</u>
$x = 40$	e. <u>?</u>



2. Solve for n .

Given: $XY = 42$

$XZ + ZY = XY$	a. <u>?</u>
$3(n + 4) + 3n = 42$	b. <u>?</u>
$3n + 12 + 3n = 42$	c. <u>?</u>
$6n + 12 = 42$	d. <u>?</u>
$6n = 30$	e. <u>?</u>
$n = 5$	f. <u>?</u>



3. $\frac{1}{2}x - 5 = 10$	Given
$2(\frac{1}{2}x - 5) = 20$	a. <u>?</u>
$x - 10 = 20$	b. <u>?</u>
$x = 30$	c. <u>?</u>

4. $5(x + 3) = 4$	Given
$5x + 15 = -4$	a. <u>?</u>
$5x = -19$	b. <u>?</u>
$x = -\frac{19}{5}$	c. <u>?</u>

Name the property that justifies each statement.

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

Use the given property to complete each statement.

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