

Day 3 – Properties of Expressions & Equations Practice

For Exercises 1-12, write the letter of each property next to its definition.

- | | |
|---|---|
| 1. If $a = b$, then $b = a$ <u>F</u> | A. Addition Property of Equality |
| 2. If $a = b$, then $ac = bc$ <u>C</u> | B. Subtraction Property of Equality |
| 3. $\overline{AB} = \overline{AB}$ <u>J</u> | C. Multiplication Property of Equality |
| 4. $a = a$ <u>E</u> | D. Division Property of Equality |
| 5. If $a = b$, then $a + c = b + c$ <u>A</u> | E. Reflexive Property of Equality |
| 6. If $a(b + c) = ab + ac$ <u>I</u> | F. Symmetric Property of Equality |
| 7. If $a = b$ and $b = c$, then $a = c$ <u>G</u> | G. Transitive Property of Equality |
| 8. If $\angle P \cong \angle Q$, then $\angle Q \cong \angle P$ <u>K</u> | H. Substitution Property of Equality |
| 9. If $\angle A \cong \angle B$ and $\angle B \cong \angle C$, then $\angle A \cong \angle C$ <u>L</u> | I. Distributive Property |
| 10. If $a = b$, and $c \neq 0$, then $\frac{a}{c} = \frac{b}{c}$ <u>D</u> | J. Reflexive Property of Congruence |
| 11. If $a = b$, then b can be substituted for a <u>H</u> | K. Symmetric Property of Congruence |
| 12. If $a = b$, then $a - c = b - c$ <u>B</u> | L. Transitive Property of Congruence |

Directions: Identify each Property of Operations or Property of Equality.

13. $6 + 0 = 6$

Additive Identity

14. $4 \cdot 5 = 5 \cdot 4$

Commutative Prop of \times

15. $4(x + 6) = 4x + 24$

Distributive Prop

16. $\frac{1}{5} \cdot 5 = 1$

Multiplicative Inverse

17. $x - 4 + 4 = x$

Addition Prop of $=$

18. If $-3 = y$, then $y = -3$

Symmetric Prop

Directions: For each equation that has been solved, name the property that describes each step of the equation solving process.

19.

$5x + 15 = 75$	Given
$5x = 60$	Subtraction Prop of $=$
$x = 12$	Division Prop of $=$

Geometry
20.

Unit 3: Intro to Proofs

$\frac{t}{3} + 14 = 29$	Given
$\frac{t}{3} = 15$	Subtraction Prop of =
$t = 45$	Multiplication Prop of =

21.

$3(x - 2) = 12$	Given
$3x - 6 = 12$	Distributive Prop
$3x = 18$	Addition Prop of =
$x = 6$	Division Prop of =

22.

$3(x + 2) - 7 + 2x = 14$	Given
$3x + 6 - 7 + 2x = 14$	Distributive Prop of =
$5x - 1 = 14$	Add / CLT
$5x = 15$	Addition Prop of =
$x = 3$	Division Prop of =

23.

$3x + 15 - 9 = 2(x + 2)$	Given
$3x + 6 = 2(x + 2)$	Subtract / CLT
$3x + 6 = 2x + 4$	Distributive Prop
$x + 6 = 4$	Subtraction Prop of =
$x = -2$	Subtraction Prop of =