

Properties of Equality

Property	Notes
Addition Property of Equality	If <u>$a=b$</u> , then <u>$a+c=b+c$</u> .
Subtraction Property of Equality	If <u>$a=b$</u> , then <u>$a-c=b-c$</u> .
Multiplication Property of Equality	If <u>$a=b$</u> , then <u>$ac=bc$</u> .
Division Property of Equality	If <u>$a=b$</u> , then <u>$\frac{a}{c}=\frac{b}{c}$</u> .
Distributive Property	If <u>$a(b+c)$</u> , then <u>$ab+ac$</u> .
Substitution property	If <u>$a=b$</u> , then a may be <u>replaced</u> by b in any real expression or equation.
Reflexive property	For any real number a , <u>$a=a$</u> . (A value will always equal itself!)
Symmetric Property	If <u>$a=b$</u> , then <u>$b=a$</u> .
Transitive Property	If <u>$a=b$</u> and <u>$b=c$</u> , then <u>$a=c$</u> .

Key.

NAME THAT PROPERTY!

Directions: Match the statements with the properties of equality. Properties will be used more than once.

- H. 1. If $k = 3$, then $3 = k$
- D. 2. If $2x = 14$, then $x = 7$
- G. 3. $4 = 4$
- A. 4. If $-5x - 1 = -11$, then $-5x = -10$
- I. 5. If $10a = 2b$ and $2b = c$, then $10a = c$
- E. 6. $-7(x - 4) = -7x + 28$
- B. 7. If $6y = 24$, then $6y - 3 = 24 - 3$
- F. 8. If $10x + w = 41$ and $w = 1$, then $10x + 1 = 41$
- C. 9. If $\frac{y}{2} = -10$, then $y = -20$
- I. 10. If $3x = 2y$ and $2y = z$, then $3x = z$
- A. 11. If $7m = 35$, then $7m + 4 = 35 + 4$
- H. 12. If $-2x = 18$, then $18 = -2x$
- F. 13. Given $3x^2 + 1$, if $x = 5$, then $3(5)^2 + 1$
- C. 14. If $m = -2$, then $8m = -16$
- G. 15. $10y = 10y$
- E. 16. $x(5 + 8) = 5x + 8x$

- A. Addition Property of Equality
- B. Subtraction Property of Equality
- C. Multiplication Property of Equality
- D. Division Property of Equality
- E. Distributive Property
- F. Substitution Property
- G. Reflexive Property
- H. Symmetric Property
- I. Transitive Property