

Algebraic properties

Addition Property of Equality

Subtraction Property of Equality

Multiplication Property of Equality

Division Property of Equality

Substitution Property of Equality

Distributive Property
with addition:
with subtraction:

Reflexive Property

Symmetric Property

Transitive Property

Name the Property of Equality that justifies this statement:

If $x = y$, then $x - z = y - z$.

- A. Division Property
- B. Subtraction Property
- C. Symmetric Property
- D. Transitive Property

Name the Property of Equality that justifies this statement:

If $g = h$, then $g + k = h + k$.

- A. Multiplication Property
- B. Reflexive Property
- C. Addition Property
- D. Transitive Property

Which statement is an example of the Reflexive Property of Equality?

- A. $x + a = x + b$
- B. If $p = q$ then $p \cdot s = q \cdot s$.
- C. $x = x$
- D. If $p = q$ then $p - s = q - s$.

Which statement is an example of the Multiplication Property of Equality?

- A. If $j = l$ then $j - k = l - k$.
- B. $j = l$
- C. If $j = l$ then $j \cdot k = l \cdot k$.
- D. If $j = l$ then $j + k = l + k$.

Use the given property to complete the statement.

Transitive Property of Congruence

If $\overline{RS} \cong \overline{UW}$ and $\overline{UW} \cong \overline{VX}$, then _____.

- A. $\overline{RS} \cong \overline{UW}$
- B. $\overline{UW} \cong \overline{VX}$
- C. $\overline{UW} \cong \overline{VX}$
- D. $\overline{RS} \cong \overline{VX}$

Use the given property to complete the statement.

Division Property of Equality

If $6x \cdot 7 = 28$, then _____.

- A. $28 = 6x \div 7$
- B. $28 = 6x \cdot 7$
- C. $6x \div 7 = 4$
- D. $6x = 4$

Use the given property to complete the statement.

Substitution Property of Equality

If $y = -9$ and $6x + y = 15$, then _____.

- A. $-9 + y = 15$
- B. $6(-9) + y = 15$
- C. $6x + 9 = 15$
- D. $6x - 9 = 15$

Name the Property of Congruence that justifies the statement:

If $\overline{ST} \cong \overline{UV}$, then $\overline{UV} \cong \overline{ST}$.

- A. Reflexive Property
- B. Transitive Property
- C. Symmetric Property
- D. none of these

Name the Property of Congruence that justifies this statement:
If $\angle P \cong \angle Q$ and $\angle Q \cong \angle R$, then $\angle P \cong \angle R$.

- A. Reflexive Property
- B. Symmetric Property
- C. Transitive Property
- D. none of these

Complete the two-column proof.

Given: $8x - 3y = -6$; $x = 4$

Prove: $\frac{38}{3} = y$

- | | |
|--------------------------|----------|
| $8x - 3y = -6$; $x = 4$ | a. _____ |
| $32 - 3y = -6$ | b. _____ |
| $-3y = -38$ | c. _____ |
| $y = \frac{38}{3}$ | d. _____ |
| $\frac{38}{3} = y$ | e. _____ |
-
- | | |
|--------------------------------------|--------------------------------------|
| A. a. Given | C. a. Given |
| b. Symmetric Property of Equality | b. Substitution Property |
| c. Substitution Property of Equality | c. Substitution Property of Equality |
| d. Division Property of Equality | d. Division Property of Equality |
| e. Reflexive Property of Equality | e. Reflexive Property of Equality |
| B. a. Given | D. a. Given |
| b. Substitution Property | b. Substitution Property |
| c. Substitution Property of Equality | c. Substitution Property of Equality |
| d. Addition Property of Equality | d. Division Property of Equality |
| e. Symmetric Property of Equality | e. Symmetric Property of Equality |

Complete the two-column proof.

Given: $\frac{x}{5} + 6 = 9$

Prove: $x = 15$

- | | |
|-----------------------|----------|
| $\frac{x}{5} + 6 = 9$ | a. _____ |
| $\frac{x}{5} = 3$ | b. _____ |
| $x = 15$ | c. _____ |
-
- | | |
|-------------------------------------|--|
| A. a. Given | C. a. Given |
| b. Subtraction Property of Equality | b. Addition Property of Equality |
| c. Division Property of Equality | c. Multiplication Property of Equality |
| B. a. Given | D. a. Given |
| b. Addition Property of Equality | b. Subtraction Property of Equality |
| c. Division Property of Equality | c. Multiplication Property of Equality |

Use the given property to complete the statement.

Subtraction Property of Equality

If $2x + 10 = 50$, then _____.

- | | |
|-------------------|-------------------|
| A. $50 = 2x - 10$ | C. $2x - 10 = 40$ |
| B. $50 = 2x + 10$ | D. $2x = 40$ |