Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Algebraic Properties

____ 1. Name the Property of Equality that justifies this statement:
If $m = n$, then $n = m$.
A. Addition Property
B. Symmetric Property
C. Multiplication Property
D. Reflexive Property

____ 2. Which statement is an example of the Transitive Property of Equality?
A. If $r = s$ and $s = m$ then $r = m$.
B. If $s = m$ then $s - k = m - k$.
C. If $s = m$ then $s \cdot k = m \cdot k$.
D. $r = s$

Use the given property to complete the statement.

____ 3. Transitive Property of Congruence
If $\overline{ST} \cong \overline{UV}$ and $\overline{UV} \cong \overline{WX}$, then _____.
A. $\overline{UV} \cong \overline{WX}$
B. $\overline{ST} \cong \overline{WX}$
C. $\overline{ST} \cong \overline{UV}$
D. $\overline{UV} \cong \overline{UV}$

____ 4. Multiplication Property of Equality
If $4x \div 3 = 18$, then _____.
A. $4x \cdot 3 = 54$
B. $18 = 4x \div 3$
C. $4x = 54$
D. $18 = 4x \cdot 3$

____ 5. Substitution Property of Equality
If $y = 3$ and $5x + y = 8$, then _____.
A. $5x - 3 = 8$
B. $3 - y = 8$
C. $5x + 3 = 8$
D. $5(3) - y = 8$

____ 6. Name the Property of Congruence that justifies the statement:
If $\overline{CD} \cong \overline{EF}$, then $\overline{EF} \cong \overline{CD}$.
A. Transitive Property
B. Reflexive Property
C. Symmetric Property
D. none of these

____ 7. 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. Symmetric Property
B. Transitive Property
C. Reflexive Property
D. none of these

____ 8. Complete the two-column proof.

Given: $9x - 4y = -8; x = -1$

Prove: $\frac{-1}{4} = y$

$9x - 4y = -8; x = -1$ a. _____

$-9 - 4y = -8$ b. _____

$-4y = 1$ c. _____

$y = \frac{-1}{4}$ d. _____

$\frac{-1}{4} = y$ e. _____

A. a. Given
b. Substitution Property
c. Addition Property of Equality
d. Division Property of Equality
e. Symmetric Property of Equality

B. a. Given
b. Substitution Property
c. Addition Property of Equality
d. Division Property of Equality
e. Reflexive Property of Equality

C. a. Given
b. Symmetric Property of Equality
c. Addition Property of Equality
d. Division Property of Equality
e. Reflexive Property of Equality

D. a. Given
b. Substitution Property
c. Addition Property of Equality
d. Addition Property of Equality
e. Symmetric Property of Equality

____ 9. Complete the two-column proof.

Given: $\frac{x}{2} + 7 = 13$

Prove: $x = 12$

$\frac{x}{2} + 7 = 13$ a. _____

$\frac{x}{2} = 6$ b. _____

$x = 12$ c. _____

A. a. Given
b. Addition Property of Equality
c. Multiplication Property of Equality

B. a. Given
b. Subtraction Property of Equality
c. Division Property of Equality

C. a. Given
b. Subtraction Property of Equality
c. Multiplication Property of Equality

D. a. Given
b. Addition Property of Equality
c. Division Property of Equality

Algebraic Properties
Answer Section

1. B
2. A
3. B
4. C
5. C
6. C
7. B
8. A
9. C