

Worksheet 2.5 Algebraic Proof

Geometry Regular

Name _____

Date _____ Mod _____

Score _____ out of 4

Write the letter of each property next to its definition. The letters a , b , and c represent real numbers. You may use a property more than once.

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| _____ 1. If $5 = x$, then $x = 5$. | A. Addition Property of Equality |
| _____ 2. If $a = b$, then $2a = 2b$. | B. Subtraction Property of Equality |
| _____ 3. $m = n$, so $n = m$ | C. Multiplication Property of Equality |
| _____ 4. $7 = 7$ | D. Division Property of Equality |
| _____ 5. If $a = b$, then $a + 8 = b + 8$. | E. Reflexive Property of Equality |
| _____ 6. $9(x + y) = 9x + 9y$ | F. Symmetric Property of Equality |
| _____ 7. If $x = 3$ and $3 = y$, then $x = y$. | G. Transitive Property of Equality |
| _____ 8. $p = q$ and $q = -1$, so $p = -1$ | H. Substitution Property of Equality |
| _____ 9. If $3x = 27$, then $x = 9$ | I. Distributive Property |
| _____ 10. If $a = b$ and $c \neq 0$, then
$\frac{a}{c} = \frac{b}{c}.$ | |
| _____ 11. If $a = b$, then b can be
substituted for a in any expression. | |
| _____ 12. If $a = b$, then $a - c = b - c$. | |

Solve each equation. Show all the steps and write a justification for each step.

13. $\frac{1}{5}(a + 10) = -3$