Properties of Real Numbers
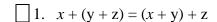
Name_____

Match each statement with the property it exemplifies. Place the matching letter in the box.

☐ 1. $x + (y + z) = (x + y) + z$ a. Additive Inverse Property

☐ 2. $(pq) \cdot 1 = pq$ b. Multiplicative Inverse Property

☐ 3. $(5x)y = 5(xy)$ c. Commutative Property of Multiplication

☐ 4. $a + 5b = 5b + a$ d. Multiplicative Identity

☐ 5. $a + 0 = a$ e. Commutative Property of Addition

☐ 6. $gh = hg$ f. Associative Property of Addition

☐ 7. $8 + (-8) = 0$ g. Distributive Property

☐ 8. $x \cdot 0 = 0$ h. Associative Property of Multiplication

☐ 9. $5 \cdot \left(\dfrac{1}{5} \right) = 1$ i. Additive Identity Property

☐ 10. $2(a + b) = 2a + 2b$ j. Zero Property

11. Does the associative property work over subtraction? Show an example to support your answer.

12. Is it true that the order when dividing three real numbers does not affect the answer? Show an example to support your answer?

13. Is this statement true? $(x \div y) - z = x \div (y - z)$
    Support your answer either numerically or algebraically.

14. What is the additive inverse of -3?

15. Use the commutative property to write an equivalent expression to: $7.4a + 8b$

16. Use the distributive property to write an equivalent expression to: $-4(5x + 9)$

17. Use the distributive property to write an equivalent expression to: $3(4a + 6b + 3c)$

18. Use the distributive property to write an equivalent expression to: $-(2x + 3y)$

19. What is the multiplicative inverse of $\dfrac{1}{5}$?

20. a. Use the distributive property to write an equivalent expression for: $3(x - 4y) - 2(y + 7x)$

    b. Simplify your answer.