Name: _____   Date: _____

The Real Number Properties
Algebra 1 Homework

Skills

1. Which of the following equations illustrates the commutative property of multiplication?

    (1) $5 \cdot (3 \cdot 2) = (5 \cdot 3) \cdot 2$ (3) $7 + x = x + 7$

    (2) $xy = yx$ (4) $3(2x - 4) = 6x - 12$

                                                     _____

2. Which of the following equations illustrates the distributive property?

    (1) $4(5x - 2) = 20x - 8$ (3) $3 + (2 + 7) = (3 + 2) + 7$

    (2) $4x \cdot 3x = 4 \cdot 3 \cdot x \cdot x$ (4) $5(x - 7) = (x - 7)5$

                                                       _____

3. Which of the following properties is illustrated by the statement $7 + (-3) = (-3) + 7$?

    (1) Distributive Property   (3) Commutative Property of Addition

    (2) Associative Property   (4) Commutative Property of Multiplication

                                                       _____

4. Which of the following equations illustrates the identity property of multiplication?

    (1) $x = x + 0$ (3) $x = 1x$

    (2) $2x + y = y + 2x$ (4) $4(3x - 2) = 12x - 8$

                                                       _____

5. For each of the following mathematical equations, fill in the blank and then state the property used to justify your answer.

    (a) $2(x + 7) = 2x + $ _____   _____

    (b) $5x + (2x + 3y) = (5x + $ _____$) + 3y$ _____

    (c) $2x + 7 + 5x - 3 = 2x + $ _____$ + 7 - 3$ _____

    (d) $y = 2x = 2x + $ _____   _____

    (e) _____$(6x + 2) = 6x + 2$ _____

6. Place parentheses in each statement to make it true. There may be more than one correct answer.

(a) $5+3 \div 2 = 4$

(b) $10-3-4-2=5$

(c) $3 \times 4 + 5 \div 3 = 9$

(d) $2 \times 8 \div 2 + 2 = 4$

Reasoning

7. Justine and Clara are having an argument. Justine claims that division is commutative just like multiplication. Clara claims it is not. Who is correct? Justify.

8. The following mathematical sentence illustrates adding two fractions with unlike denominators. What property can be used to justify multiplying the second fraction by $\frac{2}{2}$? Explain.

$$\frac{5}{6} + \frac{2}{3} = \frac{5}{6} + \frac{2}{2} \cdot \frac{2}{3}$$

$$= \frac{5}{6} + \frac{4}{6}$$

$$= \frac{9}{6}$$

✳9. Justify each statement shown below with a real number property.

Don't
Do #9

(1) $(x+4)(x-3) = x(x+4) - 3(x+4)$ (1) _____

(2) $x(x+4) - 3(x+4) = x^2 + 4x - 3x - 12$ (2) _____

(3) $x^2 + 4x - 3x - 12 = x^2 + (4-3)x - 12$ (3) _____
$$= x^2 + 1x - 12$$

(4) $x^2 + 1x - 12 = x^2 + x - 12$ (4) _____