

## Section 2.3 – Properties of Numbers

### Problem Set 3

Give the name of the property that justifies each of the following equations.

1.  $8 \cdot (-x) = -8x$

2.  $6(3 - 4) = 4 \cdot 3 - 5 \cdot 5$

3.  $9 - 4 = -6 + 2$

4.  $8 + 5 = 9 + 7$

5.  $(8 \cdot 7) \cdot 4 = 6 \cdot (3 \cdot 7)$

6.  $(7 + -4) + 9 = 3 + (-5 + 9)$

7.  $-4(8 - x) = -18 + 5x$

8.  $(x + 3) - 5 = x + (3 - 1)$

9.  $9 + 0 = 6$

10.  $(x + 4)(7) = 7x + 14$

11.  $(x + y + z) + 8 = x + (y + z + 8)$

12.  $a(6 + b) = (6 + b)a$

Use the distributive property to simplify the following expressions.

13.  $5(7 + 6)$

14.  $x(5 - 8)$

15.  $-7(-x + 4)$

16.  $-9(-x - 17)$

17.  $-y(5x + 7)$

18.  $5x(y - 9)$

Find the additive and multiplicative inverses of the following numbers.

19. 6

20.  $-\frac{10}{9}$

21. -9

22. -7

23.  $\frac{1}{9}$

24.  $\frac{3}{7}$

25. .3

26. 19

Identify the property illustrated in the following expressions.

27.  $(x + y) + 3 = x + (y + 3)$

28.  $x + 3 = 3 + x$

29.  $8a = a \cdot 8$

30.  $(5 + 4) \cdot 7 = 19 + 7$

31.  $(2 \cdot 7) \cdot 15 = 5 \cdot (8 \cdot 12)$

32.  $6(a + b) = (a + b) \cdot 4$