

Integers, except zero, have a negative sign (-) or positive sign (+). When you are working math problems, the positive sign is usually not present (7). On the other hand, you always write the sign of a negative number (-18).

### Rules for Adding Integers

- **Rule 1.** If all of the numbers being added are positive or all negative, add the numbers and keep the same sign (+ or -).
- **Rule 2.** If two numbers being combined have opposite signs, subtract the numbers, and keep the sign from the larger number.
- **Rule 3.** If subtracting positive or negative numbers, change subtraction to addition, and change the sign of the next number to its opposite. Keep the sign of the larger number. (Ex:  $3 - 4 = 3 + (-4) = -1$  since 4 is larger, and negative;  $-3 - (-4) = -3 + 4 = 1$  since 4 is larger, and positive.)

### Rules for Multiplying and Dividing Integers

- **Rule 1.** Multiply and divide the integers as you would whole numbers.
- **Rule 2.** If the signs of the two integers are alike (both positive or both negative), the answer is positive (positive  $\times$  positive = positive and negative  $\times$  negative = positive. positive  $\div$  positive = positive and negative  $\div$  negative = positive).
- **Rule 3.** If the signs of the two numbers are different, the answer is negative. (positive  $\times$  negative = negative and positive  $\div$  negative = negative)

Solve the following.

1. Arrange these numbers in order from smallest to largest. 1, -2, 6, -3, 0, 8, -5, 9

\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

In questions 2 through 4, place the correct symbol of inequality, < or >, between the two numbers to make a true statement.

2.  $2$  \_\_\_\_\_  $-20$

3.  $-15$  \_\_\_\_\_  $-5$

4.  $40$  \_\_\_\_\_  $-28$

Solve questions 5 through 7 using signed integers.

5.  $(+9) + (+3) =$  \_\_\_\_\_

6.  $(-4) + (-8) =$  \_\_\_\_\_

7.  $(18) + (-3) + (-10) + (+2) + (+7) =$  \_\_\_\_\_

Solve questions 8 through 15 using the order of operations (P, E, M, D, A, S).

8.  $(-4)(-5) =$  \_\_\_\_\_

9.  $(8)(-20) =$  \_\_\_\_\_

10.  $(12)(-2) + (-4) + (3 \times 7) =$  \_\_\_\_\_

11.  $2^2 + (-3)(2) - (3 + 5 \times 5) =$  \_\_\_\_\_

12.  $\frac{18 + (-4)}{4 - (-3)} =$  \_\_\_\_\_

13. Which equation below best represents this statement? The sum of 15 and a number, divided by 3.

\_\_\_\_\_

a.  $\frac{15+x}{3}$

b.  $\frac{15}{3} + \frac{x}{3}$

c.  $15 - \frac{x}{3}$

d.  $15 - \frac{3}{x}$

14. Write and solve the equation for the following: The product of 4 and a number is 48.

\_\_\_\_\_

15. Evaluate the algebraic expression using the given value of the variables when  $x = 4$  and  $y = -3$

$3x - 10y - 4x + 8y + 7x$  \_\_\_\_\_

a. 25

b. 28

c. 30

d. 35