

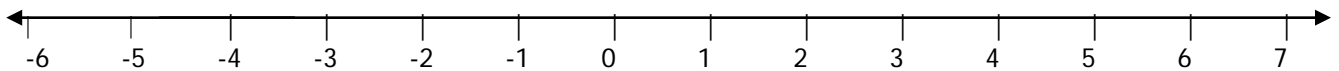
HOMEWORK: -1, 0, 1 – 53 odd Note: Web site for #53 is linked on our page.

OBJECTIVES:

- Use pictorial models to represent integers and integer addition and subtraction.
- Write and solve application problems that illustrate integer addition and subtraction.

1. **Integers** The union of the set of whole numbers and the set of negative integers is called the set of **integers**. The set of integers is denoted by $I = \{ \dots -3, -2, -1, 0, 1, 2, 3, \dots \}$
2. Give some examples of everyday uses of negative numbers.

3. Use the number line to compute $2 + (-7)$.



4. A greater number is always to the right of a lesser number on the integer number line.

Fill in the following blanks with $<$ or $>$.

A. $3 \underline{\hspace{1cm}} -3$

B. $-3 \underline{\hspace{1cm}} 3$

C. $4 \underline{\hspace{1cm}} -7$

D. $-10 \underline{\hspace{1cm}} 5$

5. The distance between 0 and an integer is called the **absolute value** of x written $|x|$.

Compute:

A. $|-4|$

B. $|4|$

C. $|0|$

6. A **zero pair** is the sum of $a + (-a)$, where a is a whole number.

You can use the concept of a zero pair and counters to demonstrate integer arithmetic with signed integers.

Compute $2 + (-7)$ with counters.

7. Properties of Integer Addition

1. For any integer a , $a + 0 = 0 + a = a$.
2. To add two positive integers, add them as whole numbers.
3. To add two negative numbers, add their absolute values and make the result negative.
4. To add a positive integer and a negative integer, compute the larger absolute value minus the smaller absolute value. The sum has the sign of the integer with the largest absolute value. If both integers have the same absolute value, the sum is 0.

8. Applications of integer addition:

- A. This morning it was very cold. The temperature was -7° . If the temperature has gone up 10 degrees by noon, what is the noon temperature?
- B. Your bank account has a zero balance. You write a check for \$25. What is your account balance?
- C. Write an application problem that represents $-10 + (-14)$

9. Integer subtraction: If x and y are integers, $x - y = x + (-y)$.

Compute using a number line.

A. $-4 - 1$

B. $4 - (-3)$

C. $-1 - (-3)$

10. Compute using counters.

A. $-4 - 1$

B. $4 - (-3)$

C. $-1 - (-3)$

11. Applications of integer subtraction

Make up a temperature or money problem for $4 - 8$, and give the result.