Section 2.R.1 Introduction to Integers

Go to Section 2.R.1 Learn mode in Hawkes to follow along!

Integers and the Number Line

Integers

The set of integers is the set of _____

$$\text{Integers} = \mathbb{Z} = \underline{\hspace{5cm}}$$

Opposites of Integers

Note the following facts about signed integers.

1. The opposite of a positive integer is _____
   For example,

   _____

2. The opposite of a negative integer is _____
   For example,

   _____

3. The opposite of 0 is _____

▶ **Example 2   Graphing Integers**

Graph the set of integers $B = \{-3, -1, 0, 1, 3\}$.

Solution

Name: Date:

Exercises

Find the opposite of each integer.

1. -3 **2.** 0 **3.** $+2$

Graph each set of integers on a number line.

4. $\{0, 1, 2\}$ **5.** $\{-5, -4, -2, -1\}$ **6.** $\{-3, -1, 0, 1, 3\}$

Inequality Symbols

Symbols of Inequality

< read _____ ≤ read _____

> read _____ ≥ read _____

▶ **Example 3 Verifying Inequalities**

Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

a. $4 \leq 12$ **b.** $4 \leq 4$ **c.** $4 < 0$ **d.** $-7 \geq 0$

Solution

Exercises

Fill in each blank with the appropriate symbol that will make the statement true: <, >, or =.

7. $3 \_\_\_ 0$ **8.** $4 \_\_\_ -8$ **9.** $-7 \_\_\_ -6$

Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (Note: There may be more than one acceptable change.)

10. $-22 < -16$ **11.** $-9 < -10$ **12.** $-5 > 5$

Absolute Value

Absolute Value

The absolute value of a number is _____

The absolute value of a number is _____

▶ **Example 6**   **Simplifying Expressions Containing Absolute Value**

Simplify.

a. $-(-10)$ **b.** $-|6|$ **c.** $-|-3|$

Solution

Exercises

Simplify.

13. $|1|$ **15.** $|23|$ **17.** $-(-21)$

14. $|-42|$ **16.** $-(-13)$ **18.** $-|-12|$

List the possible values for *x* for each statement.

19. $|x| = 8$ **21.** $|x| = 0$ **23.** $|x| = -1$

20. $|x| = 2$ **22.** $|x| = -6$