# Section 2.R.2  **Addition with Integers**

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

## Addition with Integers

Rules for Addition with Integers

1.  To add two integers with **like signs**,

    a.  add their _____

    b.  use the _____

2.  To add two integers with **unlike** signs,

    a.  subtract their _____ (the smaller from the _____)

    b.  use the _____

▶ **Example 2    Adding Integers**

Add.

**a**.  $10 + 3$

**b**.  $(-10) + (-3)$

**c**.  $10 + (-3)$

**d**.  $-10 + 3$

# Exercises

Add.

1. $4 + 9$

2. $15 + 7$

3. $8 + (-10)$

4. $19 + (-22)$

5. $-1 + (-16)$

6. $-6 + (-2)$

7. $-9 + 5$

8. $-18 + 5$

# Additive Inverses

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### Additive Inverse

The opposite of an integer is called _____

The sum of any integer and its additive inverse is _____

Symbolically, for any integer $a$,

$$\underline{\hspace{3cm}}$$

As an example, _____

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▶ **Example 3    Finding Additive Inverses**

Find the additive inverse (opposite) of each number.

**a.**  5                      **b.**  −2                      **c.**  −15

**Solution**

## Exercises

Find the additive inverse (opposite) of each integer.

| | | | |
|---|---|---|---|
| **9.**  28 | **10.**  −32 | **11.**  −9 | **12.**  11 |

Add.

| | | | |
|---|---|---|---|
| **13.**  $73+(-73)$ | **14.**  $-10+10$ | **15.**  $-9+9$ | **16.**  $43+(-43)$ |

# Integer Solutions to Equations

We can use our knowledge of addition with integers to determine whether a particular integer is a solution to an equation

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▶ **Example 4     Checking Solutions in Equations**

Determine whether the given integer is a solution to the given equation by substituting for the variable and adding.

**a.** $x + 8 = -2; \quad x = -10$

**c.** $17 + y = 0; \quad y = -17$

**b.** $x + (-5) = -6; \quad x = 1$

**Solution**

## Exercises

Determine whether the given integer is a solution to the equation by substituting for the variable and then adding.

**17.** $x + 6 = 9; \quad x = -3$

**22.** $z + (-18) = 0; \quad z = 18$

**18.** $x + (-3) = -10; \quad x = -7$

**23.** $z + (27) = 0; \quad z = -27$

**19.** $-5 + x = -13; \quad x = -8$

**24.** $a + (-3) = -10; \quad a = 7$

**20.** $y + 24 = 12; \quad y = -12$

**25.** $a + (-19) = -29; \quad a = 10$

**21.** $y + 35 = -2; \quad y = -37$