

Chapter 2 Section 3

Subtracting Integers

SUBTRACTING INTEGERS

Opposites: For every positive integer, there is a negative integer it is paired with

Ex: -1 is the opposite of 1

A number and its opposite are **ADDITIVE INVERSES** of each other.

SUBTRACTING INTEGERS

Additive Inverse Property

The sum of any number and its additive inverse is zero.

For any number a ,

$$a + (-a) = 0 \text{ or } (-a) + a = 0.$$

$$\text{Ex: } 5 + (-5) = 0$$

SUBTRACTING INTEGERS

To subtract an integer, add its additive inverse. Apply the rules for adding integers afterwards.

For any integer a & b ,

$$a - b = a + (-b)$$

"Add the opposite"

Example: Solve each equation.

$$x = (-5) - 3$$

$$-5 + -3$$

$$x = -8$$

Example: Solve each equation.

$$7 - 13 = a$$

$$7 + -13$$

$$-6 = a$$

Example: Solve each equation.

$$-13 - (-18) = d$$

$$-13 + 18$$

$$\boxed{5 = d}$$

Example: Solve each equation.

$$f = 7 - 25$$

$$7 + -25$$

$$\boxed{-18 = f}$$

Example: Solve each equation.

$$j = (-15) - 23$$

$$-15 + -23$$

$$j = -38$$

Example: Solve each equation.

$$-34 - (-19) = b$$

$$-34 + 19$$

$$b = -15$$

Example: Solve each equation.

$$q = (-42) - 38$$

$$-42 + -38$$

$$q = -80$$

Example: Solve each equation.

$$-18 - (-18) = m$$

$$-18 + 18$$

$$0 = m$$

Example: Solve each equation.

$$19 - (-7) = a$$

$$19 + 7$$

$$26 = a$$

Example: Solve each equation.

$$h = (-18) - (-13)$$

$$-18 + 13$$

$$h = -5$$

Example: Solve each equation.

$$-18 - 37 = w$$

$$-18 + -37$$

$$\boxed{-55 = w}$$

Example: Solve each equation.

$$11 - 5 = r$$

$$11 + -5$$

$$\boxed{6 = r}$$

Example: Simplify each expression.

$$11a - 12a$$

$$11a + -12a$$

$$\boxed{-1a \text{ or } -a}$$

Example: Simplify each expression.

$$-16ab - 13ab$$

$$-16ab + -13ab$$

$$\boxed{-29ab}$$

Example: Simplify each expression.

$$-28d - 17d$$

$$-28d + -17d$$

$$\boxed{-45d}$$

Example: Simplify each expression.

$$30y - (-11y)$$

$$30y + 11y$$

$$\textcircled{41y}$$