Solving Equations with Variables on Both Sides

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KEY IDEA

Solving Equations with Variables on Both Sides

To solve an equation with variables on both sides, use inverse operations to collect the variable terms on one side and the constant terms on the other side. Then isolate the variable.

$$10 - 4x = -9x$$

$$0.5(6h - 4) = -5h + 1$$

$$3(3x - 4) = \frac{1}{4}(32x + 24)$$

$$-\frac{3}{4}(8n + 12) = 3(n - 3)$$

$$3(5x + 2) = 15x$$

$$10k + 7 = -3 + 10k$$

$$\frac{n}{6} = -\frac{n}{6} + \frac{1}{2}$$

A boat leaves New Orleans and travels upstream on the Mississippi River for 4 hours. The return trip takes only 2.8 hours because the boat travels 3 miles per hour faster downstream due to the current. How far does the boat travel upstream?