

Solving in Terms of One Variable

Sometimes it is helpful to isolate one of the variables in an equation that has two variables. To isolate a variable, change the form of the equation by adding, subtracting, multiplying, or dividing both sides by the same number or expression. When necessary, multiply both sides of an equation by -1 to change the signs.

EXAMPLE 1

Solve: $2x + 3y = 6$ for y in terms of x

$$\begin{aligned} 2x + 3y &= 6 \\ 2x + 3y - 2x &= 6 - 2x \\ 3y &= 6 - 2x \\ \frac{1}{3}(3y) &= \frac{1}{3}(6 - 2x) \\ y &= 2 - \frac{2}{3}x \end{aligned}$$

EXAMPLE 2

Solve: $y - x = 2$ for x in terms of y

$$\begin{aligned} y - x &= 2 \\ y - x - y &= 2 - y \\ -x &= 2 - y \\ -1(-x) &= -1(2 - y) \\ x &= -2 + y \\ x &= y - 2 \end{aligned}$$

PRACTICE

Solve each equation for y in terms of x .

1. $12x - 4y = 48$ <i>a</i>	$6x + 2y = 10$ <i>b</i>	$3x + 4y = 60$ <i>c</i>
2. $-x + 2y = 8$	$x + 3y = 6$	$4x + 2y = -1$

Solve each equation for x in terms of y .

3. $x - 3y = -1$ <i>a</i>	$-2x + 4y = 8$ <i>b</i>	$3x + y = 9$ <i>c</i>
4. $3x - 2y = 3$	$2x - 2y = 20$	$7x + 4y = 28$