Name: _____ Date: _____

Lesson 3.4 Solving for a Variable in a Two-Variable Linear Equation

Solve for a variable in a linear equation with parentheses.

Example

The formula for converting a length f, in feet, to a length h, in inches, is $f = 12h$.

a) Express h in terms of f.

$f = 12h$

$\frac{f}{12} = \frac{12h}{12}$ Divide both sides by 12.

$h = \frac{f}{12}$ Simplify.

b) Create a table of f and h values for $f = 2, 4, 6$, and 8.

Substitute $f = 2, 4, 6$, and 8 into the equation $h = \frac{f}{12}$:

$h = \frac{2}{12}$ $h = \frac{4}{12}$ $h = \frac{6}{12}$ $h = \frac{8}{12}$

$= \frac{1}{6}$ $= \frac{1}{3}$ $= \frac{1}{2}$ $= \frac{2}{3}$

So, the table of values is:

***f* (feet)**	2	4	6	8
***h* (inch)**	$\frac{1}{6}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{2}{3}$

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Complete.

1. Solve for b in terms of a in the equation $3(a - 2) = 4b + 5$. Find b when $a = 4$.

$\_\_\_\_\_ - \_\_\_\_\_ = 4b + 5$ Use the distributive property.

$\_\_\_\_\_ - \_\_\_\_\_ + \_\_\_\_\_ = 4b + 5 + \_\_\_\_\_$ Add _____ to both sides.

$\_\_\_\_\_ = \_\_\_\_\_ + \_\_\_\_\_$ Simplify.

$\_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_ + \_\_\_\_\_ - \_\_\_\_\_$ Subtract _____ from both sides.

$\dfrac{\square - \square}{\square} = \dfrac{\square}{\square}$ Simplify. Divide both sides by _____.

$b = \dfrac{\square - \square}{\square}$ Simplify.

Substitute $a = 4$ into the equation $b = \dfrac{\square - \square}{\square}$.

$b = \dfrac{\square(\square) - \square}{\square}$ Substitute $a = 4$.

$= \_\_\_\_\_$ Simplify.

Solve. Show your work.

2. Solve for p in terms of q in the equation $2q = \frac{1}{3}(5p - 9)$. Find p when $q = -2$.