6-4 Notes: Elimination Using Multiplication

Elimination Using Multiplication Some systems of equations cannot be solved simply by adding or subtracting the equations. In such cases, one or both equations must first be multiplied by a number before the system can be solved by elimination.

Example 1:

$x + 10y = 3$
$4x + 5y = 5$

Example 2:

$3x - 2y = -7$
$2x - 5y = 10$

Exercises

Use elimination to solve each system of equations.

1. $2x + 3y = 6$
$x + 2y = 5$

2. $2m + 3n = 4$
$-m + 2n = 5$

3. $3a - b = 2$
$a + 2b = 3$

13. GARDENING The length of Sally's garden is 4 meters greater than 3 times the width. The perimeter of her garden is 72 meters. What are the dimensions of Sally's garden?

Solve Real-World Problems Sometimes it is necessary to use multiplication before elimination in real-world problems.

Example : CANOEING During a canoeing trip, it takes Raymond 4 hours to paddle 12 miles upstream. It takes him 3 hours to make the return trip paddling downstream. Find the speed of the canoe in still water.

Read

Solve Let c =

Let w =

	r	t	d	$r \cdot t = d$
Against the Current				
With the Current				

Exercises

1. An airplane traveling with the wind flies 450 miles in 2 hours. On the return trip, the plane takes 3 hours to travel the same distance. Find the speed of the airplane if the wind is still.

2. Benji and Joel are raising money for their class trip by selling gift wrapping paper. Benji raises $39 by selling 5 rolls of red wrapping paper and 2 rolls of foil wrapping paper. Joel raises $57 by selling 3 rolls of red wrapping paper and 6 rolls of foil wrapping paper. For how much are Benji and Joel selling each roll of red and foil wrapping paper?