Practice

1. To solve each linear system by elimination, what would you multiply equation ① by?

a) $x + 2y = 2$ ①
$4x - 6y = 8$ ②

So, multiply equation ① by _____.

b) $2x + y = 6$ ①
$3x - 5y = 9$ ②

So, multiply equation ① by _____.

2. Solve this linear system using elimination.

$5x - 7y = 24$ ①
$3x + 7y = -8$ ②

The coefficients of y in both equations are opposite integers.
So, add the equations to eliminate y.

$5x - 7y = 24$ ①
$+(3x + 7y = -8)$ ②

To find the value of y when $x =$ _____, substitute in equation ②.

$3x + 7y = -8$ ②

$y =$ _____

The solution is: $x =$ _____ and $y =$ _____

Verify the solution. In each equation, substitute: $x =$ _____ and $y =$ _____

$5x - 7y = 24$ $3x + 7y = -8$

So, the solution of the linear system is $x =$ _____ and $y =$ _____.

3. Solve this linear system using elimination.

$-3x + 2y = 2$ ①
$2x - 5y = -16$ ②

Sometimes, we have to multiply both equations by numbers to get opposite coefficients.

No coefficients of like terms are opposite integers.
Look at the y-terms: $2y$ and $-5y$

_____ × equation ①: _____$(-3x + 2y = 2)$ ⟶ _____ ③
_____ × equation ②: _____$(2x - 5y = -16)$ ⟶ _____ ④

Add equations ③ and ④ to eliminate y.

x = _____

To find the value of y when x = _____, substitute in equation ①.

$-3x + 2y = 2$ ①

y = _____

The solution is: x = _____ and y = _____

Verify the solution.

$-3x + 2y = 2$

$2x - 5y = -16$

4. a) Create a linear system to model this situation:

A dog groomer charges \$50 to groom a small dog and \$75 to groom a large dog. One Saturday, the groomer groomed 9 dogs for a total income of \$500.

Let the number of small dogs groomed be s.

Let the number of large dogs groomed be L.

	Cost per grooming (\$)	**Number groomed**	**Total income (\$)**
Small dog			
Large dog			
Total			

A linear system that models the situation is:

_____ ①

_____ ②

b) Solve this problem: How many small dogs and how many large dogs were groomed?

The solution is: s = _____ and L = _____

Use the data in the problem to verify these numbers.

_____ small dogs and _____ large dogs were groomed.