

## Warm Up

Graph both lines on one graph

1)  $y = -2x + 4$

2)  $y = x - 2$

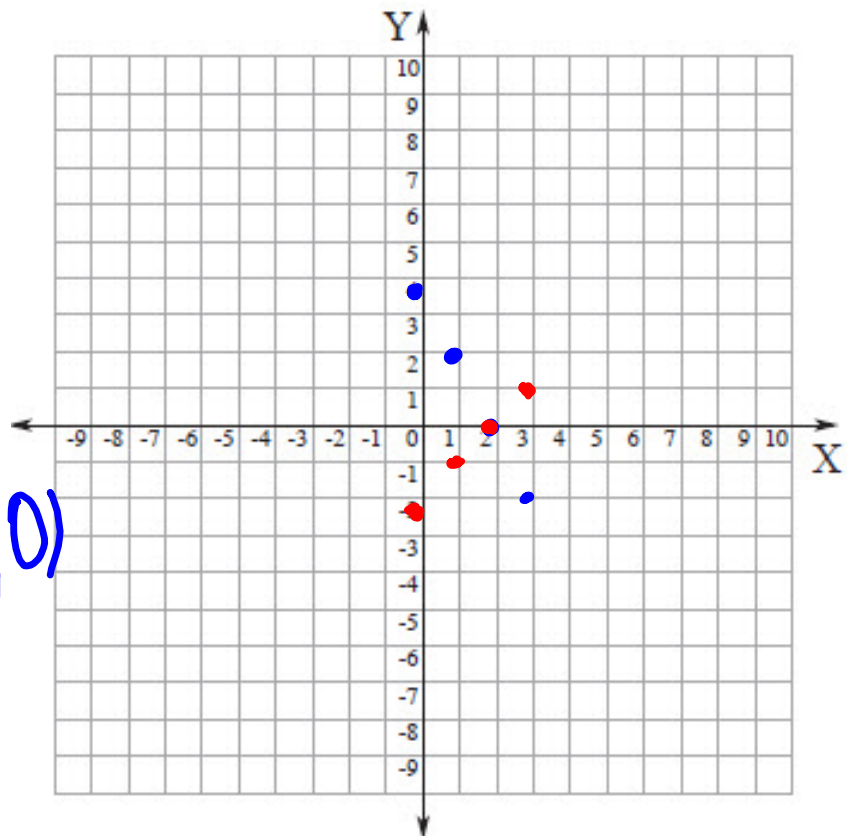
What is the

solution to the

system of

equations?

$(2, 0)$



### Verifying Solutions: Graphically

Determine if the ordered pair is a solution to the system.  
If not, state the correct solution.

$$y = \frac{1}{3}x - 3$$

$$y = -x + 1$$

$$(3, -2)$$

$$y = -1$$

$$y = -\frac{5}{2}x + 4$$

$$(2, -1)$$

$$y = 3x - 4$$

$$y = -\frac{1}{2}x + 3$$

$$(0, -4)$$

### Verifying Solutions: Algebraically

Substitute in the ordered pair to determine if it's a solution to the system.

$$y = 4x + 3$$

$$y = -x - 2$$

$$(-1, -1)$$

### Verifying Solutions: Algebraically

$$y = -2x + 2$$

$$y = -2x - 2$$

$$(0, 2)$$

### Verifying Solutions: Algebraically

$$y = x$$

$$y = -x$$

$$(2, 2)$$

## 4-2 Elimination

Objectives:

I can solve a system by elimination and determine the number of solutions

I can verify a solution

like terms:  $2x$ ,  $4x$  (2,3),  $(4x^2, 7x^2)$   
Vocabulary

Elimination: Get rid of one variable

Solution: The Answer

Infinitely many solutions: same line  $y-1=x$   
 $y=x+1$

No solution: parallel lines  $\frac{2y}{2} = \frac{2x+2}{2}$

Like Terms:

## Elimination

$$+4x$$

$$\frac{-4x}{0}$$

$$-10$$

$$\frac{+10}{0}$$

$$7x$$

$$\frac{7x}{14x}$$

$$-x$$

$$\frac{+x}{0}$$

$$2x - y = 1$$

$$\frac{-2x + 2y = 3}{0 + 1y = 4}$$

$$y = 4$$

$$2x - (4) = 1$$

$$2x - 4 = 1$$

$$\frac{2x}{2} = \frac{5}{2} \quad \boxed{x = \frac{5}{2}}$$

Solve the following systems by elimination  
(verify)

$$-4x + 3y = -3$$

$$4x - 5y = 5$$

$$\begin{array}{r} -2y = 2 \\ \hline -2 \quad -2 \end{array}$$

$$y = -1$$

$$-y + 2x = -1$$

$$y + x = 4$$

$$0 \quad 3x = 3$$

$$-4x + 3(-1) = -3$$

$$\begin{array}{r} -4x - 3 = -3 \\ \hline -4x \quad +3 = -3 \end{array}$$

$$\begin{array}{r} -4x = 0 \\ \hline -4 \quad -4 \end{array} \quad x = 0$$

$$y + (1) = 4$$

$$y + 1 = 4$$

$$\begin{array}{r} -1 \quad -1 \\ \hline y = 3 \end{array}$$

$$x = 1$$



Solve the following systems by elimination

$$\begin{array}{r} 5x + 6y = -8 \\ 2(2x + 3y = -5) \end{array} \rightarrow \begin{array}{r} 5x + 6y = -8 \\ -4x + 6y = +10 \end{array}$$


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$$1x = 2$$

$$\begin{array}{r} 4x - 4y = 8 \\ -8x + y = 19 \end{array}$$

$$5(2) + 6y = -8$$

$$x = 2$$

$$\begin{array}{r} 10 + 6y = -8 \\ -10 \quad -10 \\ \hline 6y = -18 \\ \frac{6y}{6} = \frac{-18}{6} \\ y = -3 \end{array}$$

Solve the following systems by elimination

$$\begin{array}{r} \cancel{5x - 4y = -11} \\ \cancel{-5x + 5y = 15} \end{array}$$

$$\begin{cases} 3x + 2y = 11 \\ 3(x + 5y = 8) \end{cases}$$

$$-3x + 2y = -11$$

$$\underline{3x + 15y = 24}$$

$$y = 1$$

A buffet has one price for adults and another price for children. The Taylor family has 2 adults and 2 children and their bill was \$28. The Wong family has 2 adults and 3 children and their bill was \$37. What is the price for adults and children at the buffet?