

Lesson 6-3B - Solving Systems using Elimination

Due Today: p.290 #1, 2, 4, 6, 7

1. (1,3)
2. (2, -2)
4. (-3, 4)
6. (-1/2, 10)
7. $x+y = 20$; $x - y = 4$; 12, 8

Due Thursday: p.290 #3, 5, 9-14 all (use elimination)

The ⁺sum of two numbers is 20. Their ⁻difference is 4.

- Write a system of equations that describes this situation.
- Solve by elimination to find the two numbers.

$$\begin{array}{r} \cancel{12} + y = 20 \\ + \quad x - 1y = 4 \\ \hline 2x \quad = 24 \end{array}$$

$$x = 12$$

$$y = 8$$

1) Solve the system of equations using elimination.

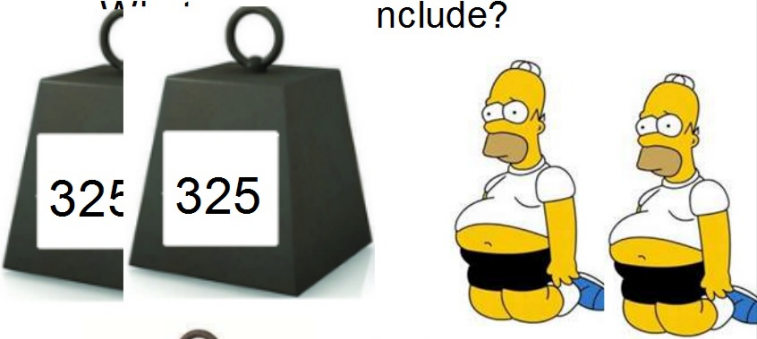
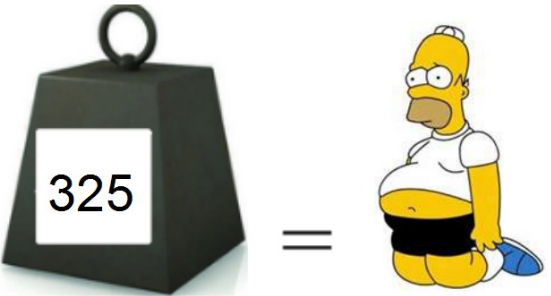
Name:
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$$\begin{array}{r} 2x + y = 9 \\ + 3x - y = 16 \\ \hline 5x = 25 \end{array}$$

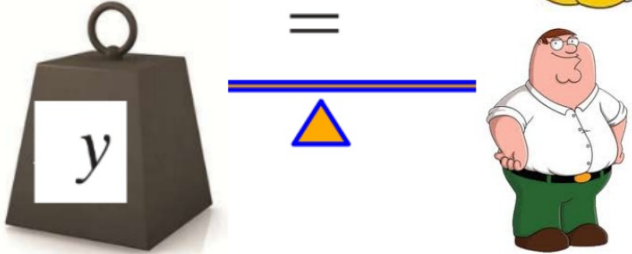
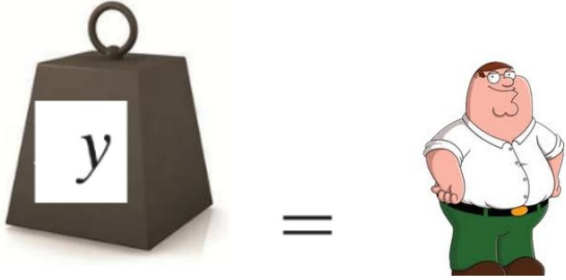
$$x = 5$$

$$\begin{array}{r} 2(5) + y = 9 \\ 10 + y = 9 \\ -10 \quad -10 \\ \hline y = -1 \end{array}$$

Solving Systems Using Elimination



include?



Elimination by multiplying one equation

$$\begin{array}{l} -1(x - 2y = -9) \\ \rightarrow x + 3y = 16 \end{array}$$

$$\begin{array}{l} x + 3(5) = 16 \\ x + 15 = 16 \\ \boxed{x = 1} \end{array}$$

$$\begin{array}{r} -x + 2y = 9 \\ + x + 3y = 16 \\ \hline 5y = 25 \\ \boxed{y = 5} \end{array}$$

$$-5(2x + 5y = -22) \quad -10x - 25y = 110$$

$$\rightarrow 10x + 3y = 22$$

$$10x + 3(-6) = 22$$

$$10x - 18 = 22$$

$$10x = 40$$

$$x = 4$$

$$10x + 3y = 22$$

$$\begin{array}{r} -22y = 132 \\ \hline -22 \quad -22 \end{array}$$

$$y = -6$$

1. $2x + 5y = 17$

$6x - 5y = -9$

2. $7x + 2y = 10$

$-7x + y = -16$

3. $2x - 3y = 61$

$2x + y = -7$

4. $8x + 11y = 20$

$5x - 11y = -59$

5. $2x + 18y = -9$

$4x + 18y = -27$

6. $20x + 3y = 20$

$-20x + 5y = 60$

$$\begin{array}{r} 3. \quad 2x - 3y = 61 \\ \rightarrow -1(2x + y = -7) + \end{array} \quad \begin{array}{r} \cancel{2x} - 3y = 61 \\ \cancel{-2x} - y = 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2x - 17 = -7 \\ 2x = 10 \\ x = 5 \end{array} \quad \begin{array}{r} -4y = 68 \\ y = -17 \end{array} \quad (5, -17)$$

9. $3x - 10y = -25$

$4x + 40y = 20$

10. $7x + 15y = 32$

$x - 3y = 20$

11. $x - 8y = 18$

$-16x + 16y = -8$

12. $24x + 2y = 52$

$6x - 3y = -36$

13. $88x - 5y = 39$

$-8x + 3y = -1$

14. $2x + 4y = 8$

$5x + y = -7$