

****SHOW YOUR WORK****

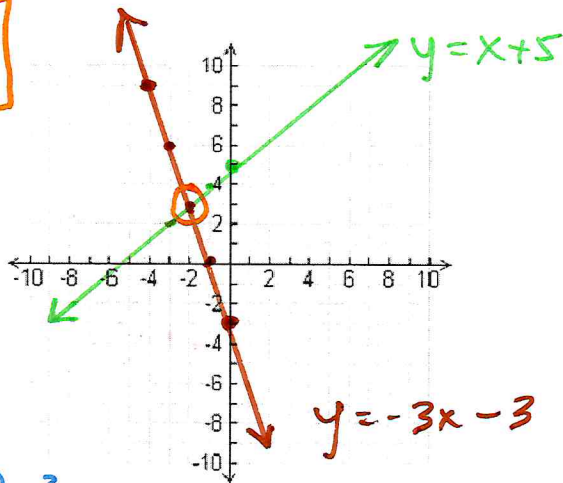
Check your solutions!

Solve each system of equations. (5 points each)

- 1) Solve this system of equations by graphing.

$$y = -3x - 3$$

$$y = x + 5$$



$$\begin{aligned} 3 &= -3(-2) - 3 \\ 3 &= 6 - 3 \checkmark \end{aligned}$$

$$3 = -2 + 5 \checkmark$$

- 2) Solve this system by substitution.

$$y = x + 1$$

$$y = 2x - 1$$

$$\begin{aligned} x + 1 &= 2x - 1 & y &= 2 + 1 \\ -x & & & \\ \hline 1 &= x - 1 & y &= 3 \\ +1 & & & \\ \hline 2 &= x & & \end{aligned}$$

$$\begin{aligned} 1 &= x - 1 \\ +1 & & \checkmark 3 &= 2(2) - 1 \\ \hline 2 &= x & 3 &= 4 - 1 \checkmark \end{aligned}$$

3. Solve by elimination:

$$3x + 7y = 48$$

$$5x - 7y = -32$$

$$8x = 16$$

$$x = 2$$

$$3(2) + 7y = 48$$

$$6 + 7y = 48$$

$$7y = 42$$

$$y = 6$$

$$\begin{aligned} \checkmark 3(2) + 7(6) \\ 6 + 42 &= 48 \checkmark \end{aligned}$$

$$\begin{aligned} 5(2) - 7(6) &= -32 \\ 10 - 42 &= -32 \checkmark \end{aligned}$$

Solve each system of equations using any method.

$$\begin{aligned} 4) \quad y &= 2x - 4 \\ y &= 2x + 5 \end{aligned}$$

same slope
- parallel lines
- **no solution**

5) $x + y = 2$

$$y = -2x - 1$$

subst.

$$-3 + y = 2$$

$$y = 5$$

$$\checkmark 5 = -2(-3) - 1$$

$$5 = 6 - 1 \checkmark$$

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

$$-x - 1 = 2$$

$$-x = 3$$

$$\boxed{x = -3}$$

$$\boxed{(-3, 5)}$$

6) $5x + 7y = -1$

$$5(4x - 2y) = 22$$

$$5x + 7(-3) = -1$$

$$5x - 21 = -1$$

$$5x = 20$$

$$x = 4$$

$$-20x - 28y = 4$$

$$20x - 10y = 110$$

$$-38y = 114$$

$$y = -3$$

$$\boxed{(4, -3)}$$

- 7) Sam bought 4 calculators and 6 notebooks and spent \$42. Stephanie bought 6 calculators and 5 notebooks and spent \$55. Find the cost of each calculator and each notebook.

- 8) Lamis sells ice cream bars at baseball games for \$0.60 each. Her factory has \$800 in fixed costs plus \$0.20 of additional expense for each ice cream bar made. How many icecream bars must Lamis sell to break even?