

Warm Up:

Carson is one less than twice Mike's age. If the sum of their ages is 35, how old are Carson and Mike?

$$C = 2M - 1 \quad C + M = 35$$

$$\underline{M} + \underline{2M - 1} = 35$$

$$3M = 36$$

$$\begin{array}{l} M = 12 \\ C = 23 \end{array}$$

12. (3, 2)

13. (2, -2)

14. (1, 2)

15. (-3, -11)

16. (-4, 4)

17. (-1, 3)

18. (-3, 5)

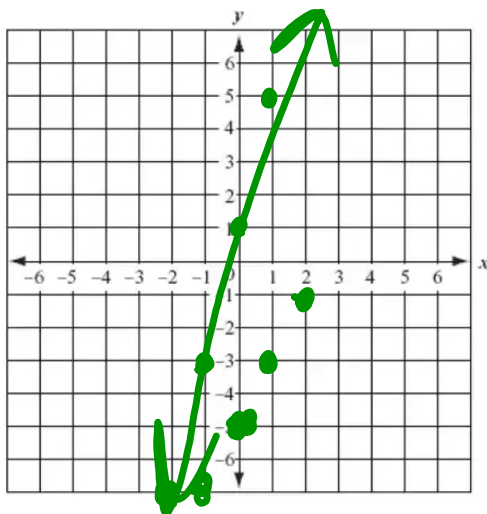
~~**19.** 27 students; 3 students~~

20. 2 yr

21. 10 classes

$$4x - y = -1 \quad y = 4x + 1$$

$$-x + y = x - 5 \quad y = 2x - 5$$



Solving by substitution:

$$\begin{cases} -x+y=1 \\ 2x+y=-2 \end{cases}$$

$$(-1, 0)$$

Step 1	Step 2	Step 3	Step 4
$\begin{array}{r} -x+y=1 \\ +x \quad \quad +x \\ \hline y=x+1 \end{array}$	$\begin{array}{r} 2x+y=-2 \\ \quad \quad \quad \underline{y} \\ 2x+x+1=-2 \\ 3x+1=-2 \\ 3x=-3 \\ x=-1 \end{array}$	$\begin{array}{r} -x+y=1 \\ -(-1)+y=1 \\ 1+y=1 \\ y=0 \end{array}$	$\begin{array}{r} -(-1)+0=1 \\ 1=1 \\ 2(-1)+0=-2 \\ -2=-2 \end{array}$

$$\begin{cases} -x+4y=10 \\ x-3y=11 \end{cases}$$



$$x=3y+11$$

$$-x+4y=10$$

$$-(3y+11)+4y=10$$

$$-3y-11+4y=10$$

$$y=21$$

$$(74, 21)$$

$$x-3y=11$$

$$x-3(21)=11$$

$$x-63=11$$

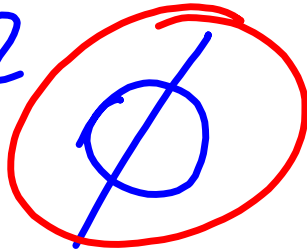
$$x=74$$

$$\begin{cases} 2x+y=-4 \\ 2y=-4x+2 \\ y=-2x+1 \end{cases} \quad \begin{array}{l} 2x+y=-4 \\ y=-2x-4 \end{array}$$

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

$$-4x-8 = -4x+2$$

$$-8/2$$



$$\begin{cases} x = \underline{3y - 6} \\ \underline{3x - 9y} = -18 \end{cases}$$

$$3(3y - 6) - 9y = -18$$

$$9y - 18 - 9y = -18$$

$$-18 = -18$$

infinite
solutions

The Philly Phanatic is selling food at the Phillies game. He sells \$2 hotdogs and \$5 cheeseburgers. He sold 198 items of food for \$630. How many hotdogs and cheeseburgers did he sell?

Variables: $h = \text{hotdogs}$ $c = \text{cheeseburgers}$

Equations: $2h + 5c = 630$ $h + c = 198$

$$2(-c + 198) + 5c = 630$$

$$h = -c + 198$$

$$-2c + 396 + 5c = 630$$

$$3c = 234$$

$$c = 78$$

$$h = 120$$

Cory found some change in the couch that consisted of only nickels and dimes. He counted 37 coins in all that added up to \$2.55. How many nickels were in the couch?

Variables: $n = \text{nickels}$ $d = \text{dimes}$

Equations: $n + d = 37$ $.05n + .1d = 2.55$ $\times 100$

$$5n + 10d = 255$$

$$-4x+y=6$$

$$-5x-y=21$$

$$-7x-2y=-13$$

$$x-2y=11$$

$$-5x+y=-2$$

$$-3x+6y=-12$$

$$-5x+y=-3$$

$$3x-8y=24$$

