

Consider the system of equations

$$\begin{aligned}x - 3y &= 6 \\ -2x + 5y &= -5\end{aligned}$$

① Solve the first equation for x to

get $x =$ (stuff)

$$x = 3y + 6$$



② Put stuff in for x in the second equation and solve for y .

③ Use any equation with both x and y in it to find x .

$$-2(3y+6)+5y=-5$$

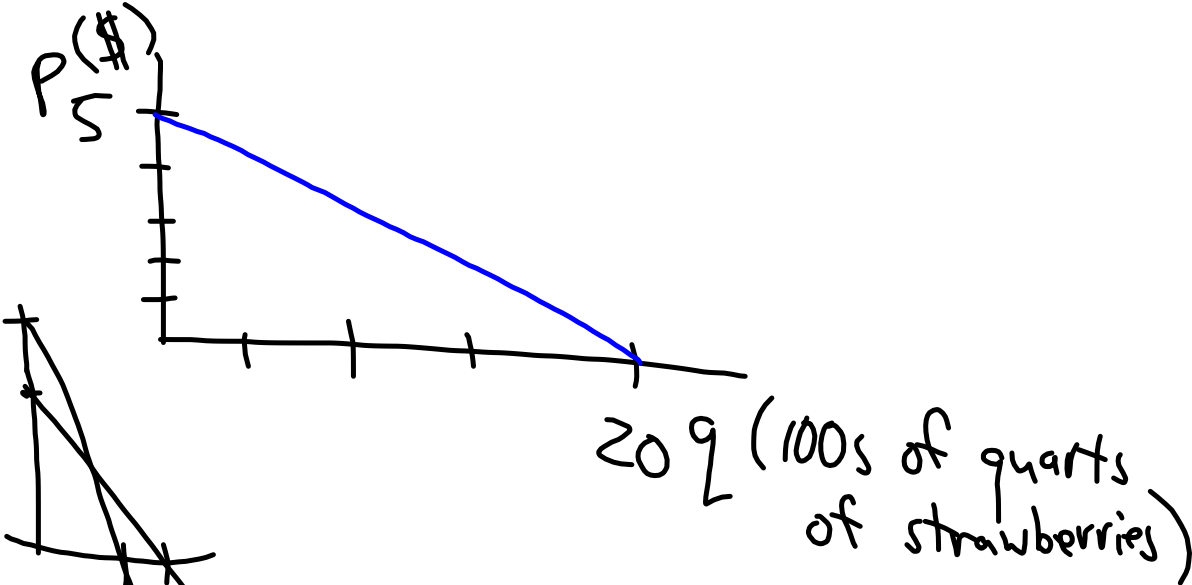
$$-6y-12+5y=-5$$

$$(-1)(-y-12)=(-5)(-1)$$

$$y+12=5$$

$$y=-7$$

$$\begin{aligned} \rightarrow x &= 3(-7)+6 \\ x &= -21+6 \\ x &= -15 \end{aligned}$$



$$p = 5 - 0.25q$$

$$4.50 = 5 - 0.25q$$

$$-.50 = -0.25q$$

$$2 = q$$

200 quarts

$$p = \$4.50$$

300 quarts

3 hundreds

$$\begin{array}{r} 2x - 4y = 18 \xrightarrow{\text{times } 5} 10x - 20y = 90 \\ 3x + 5y = 5 \xrightarrow{\text{times } 4} \underline{12x + 20y = 20} \\ \hline 22x = 110 \\ x = 5 \end{array}$$

$\rightarrow 3(5) + 5y = 5 \leftarrow x = 5$

$$\begin{array}{l} 5y = -10 \\ y = -2 \end{array} \quad (5, -2)$$

$$\begin{array}{l}
 -2x - 6y + 2z = 6 \xrightarrow{\cdot 2} \leftarrow x + 3y - z = -3 \xrightarrow{\cdot 3} -3x - 9y + 3z = 9 \\
 3x - y + 2z = 1 \implies \underline{3x - y + 2z = 1} \\
 \underline{2x - y + z = -1} \leftarrow 2x - y + z = -1 \\
 -7y + 3z = 5 \\
 \begin{array}{l}
 \xrightarrow{\text{times } 2} -14y + 6z = 10 \\
 14y - 7z = -14 \\
 \hline
 -z = -4 \\
 \boxed{z = 4}
 \end{array}
 \end{array}$$

$\xleftarrow{\text{times } -7}$

$$-2y + 4 = 2$$

$$\frac{-2y}{-2} = \frac{-2}{-2}$$

$$y = 1$$

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

$$x - 1 = -3$$

$$x = -2$$

$$\begin{aligned}7x - 6y &= 13 \\6x - 5y &= 11\end{aligned}$$

$$(0, 525) \quad (1000, 2675)$$

$x = \# \text{ books}$

$C = \text{cost} (\$)$

$$C = mx + 525$$

$$\left\{ \begin{array}{l} C = 2.15x + 525 \end{array} \right.$$

$$\left\{ \begin{array}{l} R = 4.95x \end{array} \right.$$

$$\rightarrow P = R - C$$

$$m = \frac{2675 - 525}{1000 - 0}$$

$$= \frac{2150}{1000} = 2.15$$

$$c) P = 4.95x - (2.15x + 525)$$

$$P = 2.80x - 525$$

$$1000 = 2.80x - 525$$

$$\vdots$$
$$x = 544.6 \text{ books}$$

$$b) C = R$$

$$2.15x + 525 = 4.95x$$

$$\vdots$$

$$\underline{\hspace{1cm}}$$
$$x = 187.5 \text{ books}$$