

1. Jerome sells flowers for \$12 per bouquet through his Internet flower site. Each bouquet costs him \$5.70 to make. Jerome also paid a one-time fee of \$150 for an Internet marketing firm to advertise his company.

a. Write a system of equations to represent the situation. Make sure to define your variables.

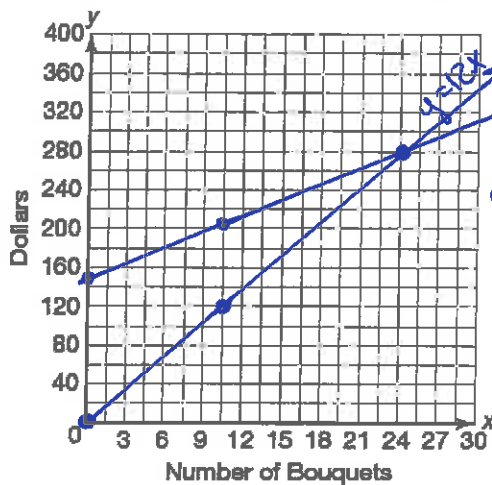
$x = \# \text{ flowers sold}$

$y = \text{money earned/spent}$

$y = 12x$  : income for selling flowers

$y = 5.70x + 150$  : Expenses for flowers.

b. Graph the system and use the graph to estimate the break-even point.



$y = 12x$   
 $y\text{-int} = 0$   
 $(0,0)$   
 $y = 12(10)$   
 $= 120$   
 $(10, 120)$

$y = 5.70x + 150$   
 $y\text{-int} = 150$   
 $(0, 150)$   
 $y = 5.7(10) + 150$   
 $= 57 + 150$   
 $= 207$   
 $(10, 207)$

Break-even point 24 flowers.

2. Solve the system using substitution. Is the system consistent or inconsistent?

$$\begin{cases} 6x + 3y = 5 \\ y = -2x + 1 \end{cases}$$

$$6x + 3(-2x + 1) = 5$$

$$6x - 6x + 3 = 5$$

$$3 = 5$$

no solution

Inconsistent because there is no solution.

