

Agriculture
Break Even Quiz

Name _____

Key

1. Anna decides to sell raspberries that she has picked. She picks strawberries for \$3.25 a quart at a U-pick farm and then sells them in town for \$4.50 a quart. She figures \$15 for gas and containers. How many quarts must she sell before she starts earning a profit?

$$\text{Expenses} = 3.25x + 15$$

$$\text{Revenue} = 4.50x$$

$x = \text{Qts to break even}$

$$\text{Expense} = \text{Revenue}$$

$$3.25x + 15 = 4.50x$$

$$- 3.25x$$

$$- 3.25x$$

$$15 = 1.25x$$

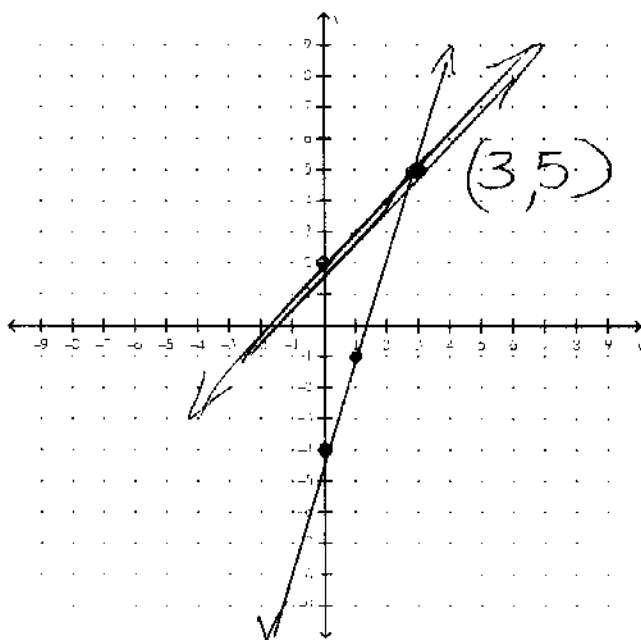
$$\frac{1.25}{1.25} \quad \frac{1.25}{1.25}$$

$$x = 12 \text{ Qts}$$

2. Solve by graphing.

$$y = 3x - 4$$

$$y = x + 2$$



(3, 5)

3. Solve by substitution.

$$y = 3x + 7$$

$$y = x - 9$$

$$3x + 7 = x - 9$$

$$-x$$

$$-x$$

$$2x + 7 = -9$$

$$-7$$

$$-7$$

$$2x = -16$$

$$\frac{2}{2}$$

$$\frac{2}{2}$$

$$x = -8$$

$$y = -8 - 9$$

$$y = -17$$

$$(-8, -17)$$

4. Solve by substitution.

$$y = 5x - 5$$

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

$$\begin{aligned} -4x + 2(5x - 5) &= 2 \\ -4x + 10x - 10 &= 2 \\ 6x - 10 &= 2 \\ \underline{+10} \quad \underline{+10} & \end{aligned}$$

$$\frac{6x}{6} = \frac{12}{6}$$

$$x = 2$$

$$y = 5(2) - 5$$

$$y = 10 - 5$$

$$y = 5$$

$$(2, 5)$$

5. A rental car agency charges a flat fee of \$32 plus \$3 per day to rent a certain car. Another agency charges a fee of \$30.50 plus \$3.25 per day to rent the same car.

- Write a system of equations to represent the cost c for renting a car at each agency for d days.
- Find the number of days for which the costs are the same. Round your answer to the nearest whole day.

~~A.~~ a. $\begin{cases} c = 3.00d + 32 \\ c = 3.25d + 30.50 \end{cases}$
b. 11

C. a. $\begin{cases} c = 3.00d + 30.50 \\ c = 3.25d + 32.00 \end{cases}$
b. 6

B. a. $\begin{cases} c = 3.00d + 32 \\ c = 3.25d + 30.50 \end{cases}$
b. 6

~~D.~~ a. $\begin{cases} c = 3.00d + 30.50 \\ c = 3.25d + 32.00 \end{cases}$
b. 11

$$c = 32 + 3d$$

$$c = 30.50 + 3.25d$$

B

$$32 + 3d = 30.50 + 3.25d$$

$$\begin{aligned} 32 &= 30.50 + 0.25d \\ \underline{-30.50} \quad \underline{-30.50} & \end{aligned}$$

$$\frac{1.5}{.25} = \frac{0.25d}{.25}$$

$$d = 6$$