

Quiz Review #2

$$1. \begin{cases} 3x - y = -3 \\ -4x + 3y = -6 \end{cases}$$

$$\downarrow$$

$$\begin{cases} y = 3x + 3 \\ y = \frac{4}{3}x - 2 \end{cases}$$

Soln: $(-3, -6)$
 class:
 independent

$$2. \begin{cases} -x + y = -17 \\ 6x - 3y = 63 \end{cases}$$

$$\downarrow$$

$$\begin{cases} y = x - 17 \\ y = 2x - 21 \end{cases}$$

Soln: $(4, -13)$
 class:
 independent

$$3. \begin{cases} 3x + y = 2 \\ -3y - 9x = -12 \end{cases}$$

$$\downarrow$$

$$\begin{cases} y = -3x + 2 \\ y = -3x + 4 \end{cases}$$

Soln:
 NO SOLUTION
 class:
 inconsistent

$$4. \begin{cases} x - y = 5 \Rightarrow x = y + 5 \\ 5y - 2x = -13 \end{cases}$$

$$5y - 2(y + 5) = -13$$

$$5y - 2y - 10 = -13$$

$$\begin{array}{r} 3y - 10 = -13 \\ +10 \quad +10 \\ \hline 3y = -3 \end{array}$$

$$y = -1$$

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

$$x = 4$$

Soln: $(4, -1)$ class: independent

$$5. \begin{cases} (-4x + 5y = 38) \cdot 3 \\ (3x - 3y = -23.25) \cdot 4 \end{cases}$$

$$\begin{array}{r} -12x + 15y = 114 \\ 12x - 12y = -93 \\ \hline 3y = 21 \\ \frac{3}{3} \quad \frac{21}{3} \\ y = 7 \end{array}$$

$$\begin{array}{r} -4x + 5(7) = 38 \\ -4x + 35 = 38 \\ \cdot \quad -35 \quad -35 \\ \hline -4x = 3 \\ \frac{-4}{-4} \quad \frac{3}{-4} \\ x = -\frac{3}{4} \end{array}$$

Soln: $(-\frac{3}{4}, 7)$
 class:
 independent

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

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

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

$$3 = 3$$

Soln:
 infinite solutions
 class:
 dependent

7. a) $x = \#$ of hours

$y =$ total earned

Plan 1: $y = 5x$

Plan 2: $y = 2.50x + 10$

b) $5x = 2.50x + 10$
 $-2.50x \quad -2.50x$

$\frac{2.50x}{2.50} = \frac{10}{2.50}$

$x = 4$

For 4 hours

both plans cost \$20.

Plan 1: $5(4) = 20$

Plan 2: $2.50(4) + 10$

$10 + 10$

20