

Math 1010 - Quiz 5

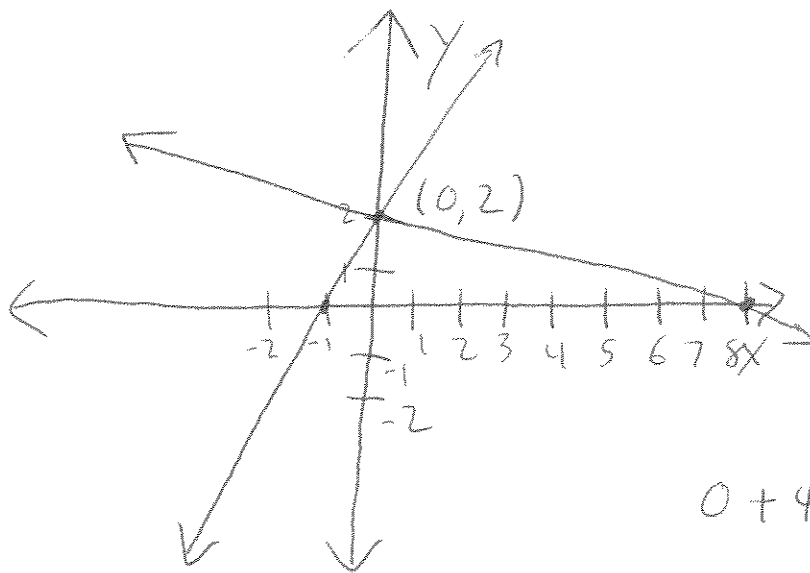
University of Utah

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Name: Solutions

1. Use the graphical method to find the solution to the system of equations. Make sure to check your result. (5 points)

$$\begin{array}{rcl} x & + & 4y = 8 \\ -2x & + & y = 2 \end{array}$$



Looks like
(0, 2) is the
intersection.

$$0 + 4(2) = 8 \checkmark$$

$$-2(0) + 2 = 2 \checkmark$$

So, it checks out.

2. Use the method of substitution to find the solution to the given system of equations. (5 points)

$$\begin{aligned} 4x - 5y &= 13 \\ 3x - y &= 7 \end{aligned}$$

$$-y = 7 - 3x \Rightarrow y = 3x - 7$$

$$4x - 5(3x - 7) = 13 \Rightarrow 4x - 15x + 35 = 13$$

$$\Rightarrow -11x = -22 \Rightarrow \boxed{x = 2}$$

$$3(2) - y = 7 \Rightarrow -y = 1 \Rightarrow \boxed{y = -1}$$

$$\text{So, } \boxed{(2, -1)}$$

3. Use the method of elimination to find the solution to the given system of equations. (5 points)

$$\begin{aligned} 4x + 3y &= -10 \\ 3x - y &= -14 \end{aligned}$$

$$3x - y = -14 \Rightarrow 9x - 3y = -42$$

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

$$9x - 3y = -42$$

$$\Rightarrow 13x = -52$$

$$\Rightarrow \boxed{x = -4}$$

$$3(-4) - y = -14$$

$$\Rightarrow -y = -2$$

$$\Rightarrow \boxed{y = 2}$$

3

$$\boxed{(-4, 2)}$$