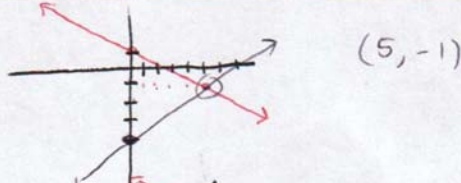


Name: Key Hour: _____

Solve the following systems of equations. Use whichever method you would like, though I will put them in groups based on which way I recommend you solve them.

Recommended Method: Graphing Calculator (Also substitution works for these)

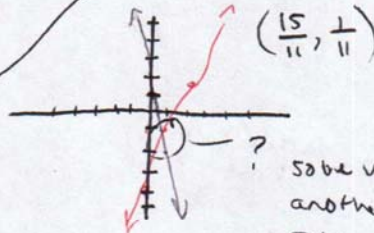
1. $y = -\frac{2}{5}x + 1$; $y = \frac{3}{5}x - 4$



2. $y = -\frac{2}{3}x + 4$; $y = 3x - 7$



3. $y = 3x - 4$; $y = -\frac{2}{3}x + 1$



substitution... $3x - 4 = -\frac{2}{3}x + 1$
 $+\frac{2}{3}x \quad +4 \quad +\frac{2}{3}x \quad +4$

$\frac{2}{3} \cdot \frac{11}{3}x = 5 \cdot \frac{3}{11}$
 $x = \frac{15}{11}$
 $y = 3 \cdot \frac{15}{11} - 4$
 $= \frac{45}{11} - 4 = \frac{1}{11}$

Recommended Method: Substitution

4. $4x - y = 8$; $y = 4x + 3$

$4x - (4x + 3) = 8$
 $4x - 4x - 3 = 8$
 $0 - 3 = 8$

$-3 \neq 8$

this is a False statement, therefore there are NO solutions

Solve using another method or calculator. - This turned out to be a bad graph.

5. $5x + y = 10$; $y = 5x + 10$

$5x + 5x + 10 = 10$
 $10x + 10 = 10$
 $-10 \quad -10$
 $x = 0$

Plug $x = 0$ into $y = 5x + 10$...

$y = 5(0) + 10$
 $= 0 + 10$
 $= 10$

Answer $(0, 10)$

6. $6x - y = 18$; $y = \frac{1}{6}x + 3$

$6x - (\frac{1}{6}x + 3) = 18$
 $6x - \frac{1}{6}x - 3 = 18$

$\frac{35}{6}x - 3 = 18$
 $+\frac{6}{35} \cdot \frac{35}{6}x = 21 \cdot \frac{6}{35}$

$(\frac{18}{5}, \frac{18}{5})$

$x = \frac{18}{5}$ → plug that into x
 $y = \frac{1}{6}x + 3$
 $y = \frac{1}{6}(\frac{18}{5}) + 3$
 $y = \frac{18}{5}$

Recommended Method: Elimination

7. $(x + 6y = 1) \cdot 2$

$-2x - 11y = -4$

$2x + 12y = 2$

$1y = -2$

$y = -2$

plug $y = -2$ into an equation

$x + 6y = 1$

$x = 13$

$x + 6(-2) = 1$

$x - 12 = 1$
 $+12 \quad +12$

$(13, -2)$

9. $12x + 3y = 8$

$+12x - 3y = 8$

$2(-6x - \frac{3}{2}y = 4)$

$12x + 3y = 8$

$-12x - 3y = 8$

$0 + 0 = 16$

$6 = 16$

NO solutions

$$8(2x - 3y = -3) \cdot 3$$

$$-6x + 10y = 8$$

$$6x - 9y = -9$$

$$y = -1$$

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

$$(-3, -1)$$

$$x = -3$$

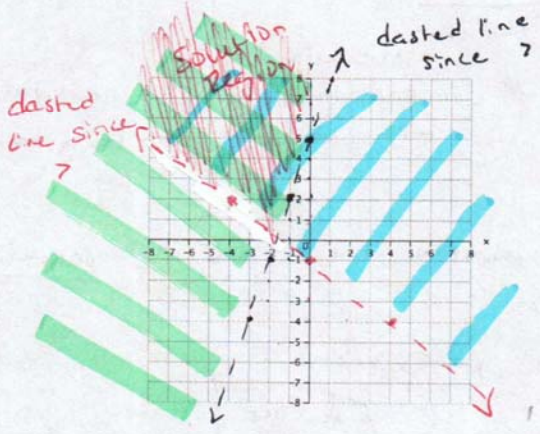
$$2x + 3 = -3$$

$$2x = -6$$

Systems of Inequalities:

$$11. y > -\frac{3}{4}x - 1$$

$$y > 3x + 5$$



shading: Test a point
my point of choice: (0,0)

$$0 > -\frac{3}{4}(0) - 1$$

$$0 > -1 \quad \text{True } \checkmark$$

$$0 > 3(0) + 5$$

$$0 > 5 \quad \text{False } \times$$

$$10. x + 3y = -2$$

$$-x - 2y = 4$$

$$y = 2$$

$$x + 3(2) = -2$$

$$x + 6 = -2$$

$$x = -8$$

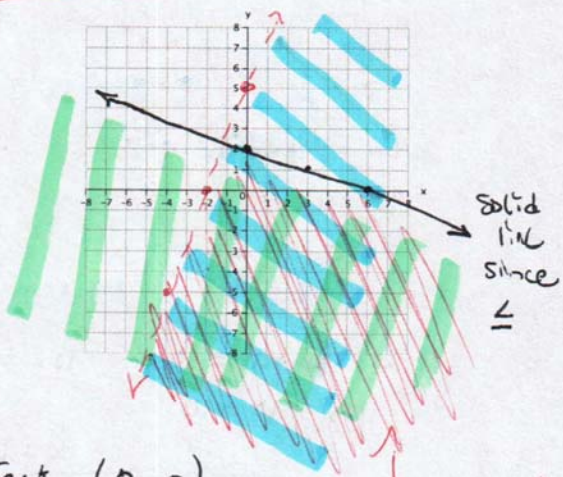
$$(-8, 2)$$

$$12. 5x - 2y > -10$$

$$-2y > -5x - 10$$

$$y < \frac{5}{2}x + 5$$

$$y \leq -\frac{1}{3}x + 2$$



Test (0,0)

$$0 < \frac{5}{2}(0) + 5$$

$$0 < 5 \quad \text{true } \checkmark$$

$$0 \leq -\frac{1}{3}(0) + 2$$

$$0 \leq 2 \quad \text{True } \checkmark$$

Solution Region