

Quiz 3.1 - 3.3 Systems of Equations and Inequalities

Solve by graphing. * For the equation in standard form, name the x- and y- intercepts.

$$3y = 2x - 4$$

$$x - 2y = 1$$

x-int \rightarrow Make $y=0$

y-int \rightarrow Make $x=0$

$$m = -\frac{A}{B}$$

$$Ax + By = C$$

Graph the system.

$$4x - 2y < 8$$

$$y \geq -3x + 2$$

Solve Using Substitution

$$3x + 5y = 13$$

$$2x + y = 4$$

Solve Using Elimination

$$3x + 4y = 10$$

$$2x + 3y = 7$$

Quiz 3.1-3.3 Systems of Equations and Inequalities

Solve by graphing.

* For the equation in standard form, name the x- and y- intercepts.

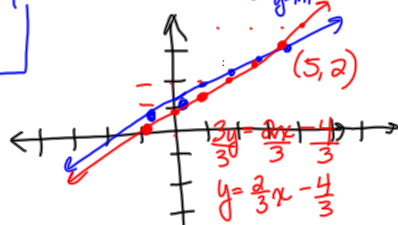
① $3y = 2x - 4$

② $x - 2y = 1$

x-int → Make y=0
 y-int → Make x=0
 $m = -\frac{A}{B}$
 $Ax + By = C$
 $m = -\frac{A}{B} = \frac{C}{B}$

$y=0$
 $x-2 \cdot 0 = 1$
 $x = 1$
 x-int

$x=0$
 $0 - 2y = 1$
 $-2y = 1$
 $-\frac{2y}{-2} = \frac{1}{-2}$
 $y = -\frac{1}{2}$
 y-int



② $x - 2y = 1$
 $-x$
 $-\frac{2y}{-2} = \frac{-x+1}{-2}$
 $y = \frac{1}{2}x - \frac{1}{2}$

Graph the system

① $4x - 2y < 8$

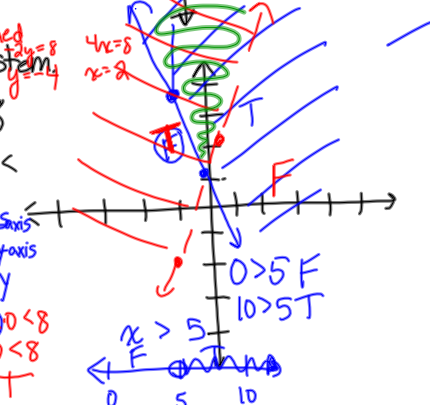
② $y \geq -3x + 2$

① Solid/dashed lines is

② Shade

$0 > 3 \cdot 0 + 2$
 $0 > 2$
 F

Plug in $(0, 2)$
 $0 < 8$
 $0 < 8$
 T



Three types of systems:

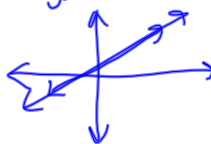
Inconsistent = no solution = parallel lines
 (Ex: 8)



Consistent + independent = one solution



Consistent + dependent = infinitely many solution = same (coinciding) line
 (Ex: 2x + 4y = 6)



Substitution

$$\begin{array}{r} 3 + 10 \\ 3x + 5y = 13 \\ 2x + y = 4 \\ \underline{-2x \quad -2y} \end{array}$$

$$\begin{aligned} y &= 4 - 2x \\ &= 4 - 2 \cdot 1 \\ &= 4 - 2 \end{aligned}$$

$$y = 2$$

$$(1, 2)$$

Elimination

$$\begin{array}{r} 3x + 4y = 10 \\ 2x + 3y = 7 \end{array}$$

$$\rightarrow 3x + 5(4 - 2x) = 13$$

$$3x + 20 - 10x = 13$$

$$\begin{array}{r} -7x + 20 = 13 \\ -20 \quad -20 \end{array}$$

$$\underline{-7x = -7}$$

$$x = 1$$

$$\begin{array}{r} 2(3x + 4y = 10) \rightarrow 6x + 8y = 20 \\ -3(2x + 3y = 7) \rightarrow \underline{-6x - 9y = -21} \end{array}$$

$$2x + 3(1) = 7$$

$$\begin{array}{r} 2x + 3 = 7 \\ \underline{-3 \quad -3} \end{array}$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x = 2$$

$$(2, 1)$$