Solving Systems of Equations

System of Equations:

$$\begin{cases} 2x + 3y = 6 \\ 5x - 2y = -4 \end{cases}$$

$y = -\frac{2}{3}x + 2$

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

Solution is where the graphs intersect

Graphing

$(0,2)$

Elimination:

$(2x + 3y = 6)2$
$(5x - 2y = -4)3$

$4x + 6y = 12$
$15x - 6y = -12$
_____
$19x = 0$
$x = 0$

$2(0) + 3y = 6$
$y = 2$

$(0, 2)$

Substitution:

$5x - 2y = -4$
$-2y = -5x - 4$
$y = \frac{5}{2}x + 2$

$y = \frac{5}{2}(0) + 2$
$y = 2$

$2x + 3(\frac{5}{2}x + 2) = 6$
$2x + \frac{15}{2}x + 6 = 6$
$9\frac{1}{2}x = 0$
$x = 0$
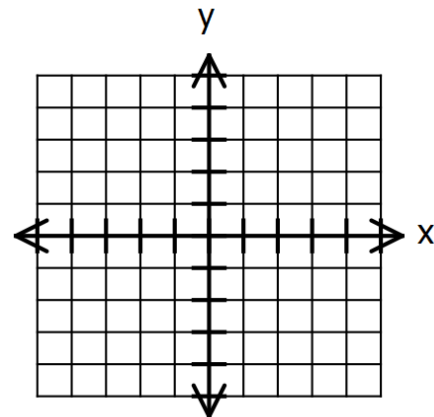$(0, 2)$
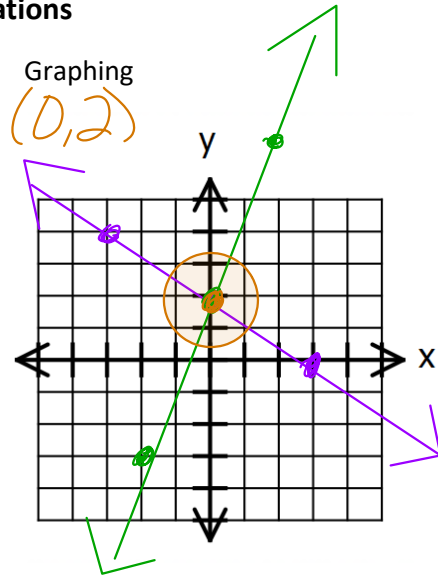
Solving Systems of Equations

System of Equations:

$$\begin{cases} 2x + 3y = 6 \\ 5x - 2y = -4 \end{cases}$$

Graphing

Elimination:

Substitution:

Solving Inequalities $<, >, \leq, \geq$

Linear Inequalities *
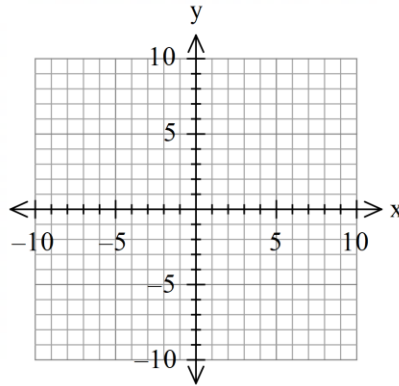
Example: $-3x - 10 \leq 11$

Graphing

Lines

Shading

Quadratic Inequalities

Example: $\dfrac{x+2}{x-5} > 0$

Solving Inequalities $<, >, \leq, \geq$

Linear Inequalities *

Example: $-3x - 10 \leq 11$

Graphing

Lines

Shading

Quadratic Inequalities

Example: $\dfrac{x+2}{x-5} > 0$