11) $4x - 3y + 5z = -19$
$3x - y - 8z = -21$
$-2x + y + 3z = 13$

$-2(-3) + y + 3(1) = 13$

Eliminate y

$x - 5z = -8$ ☆

$x - 5 = -8$

$4x - 3y + 5z = -19$
$-9x + 3y + 24z = 63$

$-5x + 29z = 44$ ☆

$5x - 25z = -40$
$-5x + 29z = 44$

$4z = 4$

$z = 1$

$(-3, 4, 1)$

9) $11x - y = 11$
$y - z = 11$
$x + 12z = 2$ ☆

eliminate y

$$\begin{array}{r} 11x - y = 11 \\ y - z = 11 \\ \hline 11x - z = 22 \end{array}$$ ☆

$$\begin{array}{r} x + 12z = 2 \\ 132x - 12z = 264 \\ \hline 133x = 266 \\ x = 2 \end{array}$$

8) $4x + 2y - 2z = 10$
$2x + 8y + 4z = 32$
$30x + 12y - 4z = 24$

$32x + 20y = 56$ ☆

$8x + 4y - 4z = 20$
$2x + 8y + 4z = 32$

$10x + 12y = 52$ ☆

$32x + 20y = 56$
$10x + 12y = 52$

$8x + 5y = 14$
$5x + 6y = 26$

Factor the following competely.

1. $3x^4 + 18x^3 + 27x^2$

$3x^2(x^2+6x+9)$

$3x^2(x+3)(x+3)$ or $3x^2(x+3)^2$

2. $343x^3 + 1000$

$(7x+10)(49x^2-70x+100)$

3. $\underbrace{25x^3 - 15x^2} + \underbrace{15x - 9}$

$5x^2(5x-3)+3(5x-3)$

$(5x-3)(5x^2+3)$

4. $16x^2 - 8x$

$8x(2x-1)$

5. $\overset{3\cdot 2}{6}x^2 + 13x \overset{7\cdot 4}{-28}$

$(2x+7)(3x-4)$

http://ed.ted.com/lessons/pixar-the-math-behind-the-movies-tony-derose

<u>Graph The System of Linear Inequalities</u>: Find where the shaded areas from each line overlap each other.

1. $y < 3x - 2$

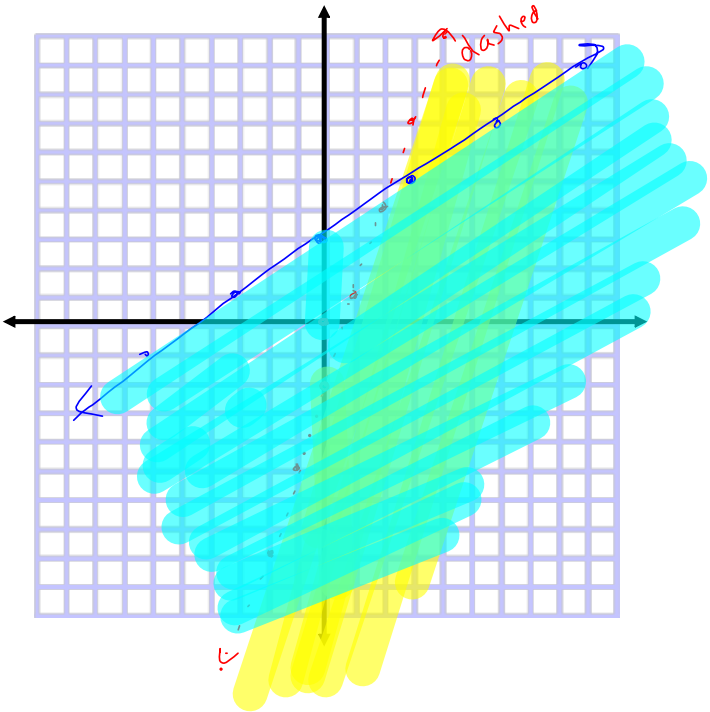
$0 < -2$ F

$2x - 3y \geq -9$

$-2x \qquad -2x$

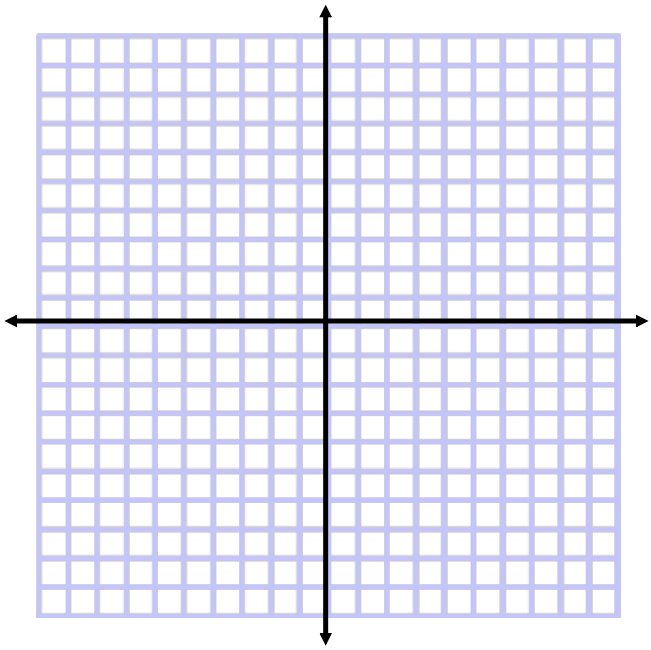
$\frac{-3y}{-3} \geq \frac{-2}{-3}x - \frac{9}{-3}$

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



$y < -(x - 2)^2 + 1$

$x - y \geq 1$



2. $y \le \frac{1}{2}|x + 1| - 2$

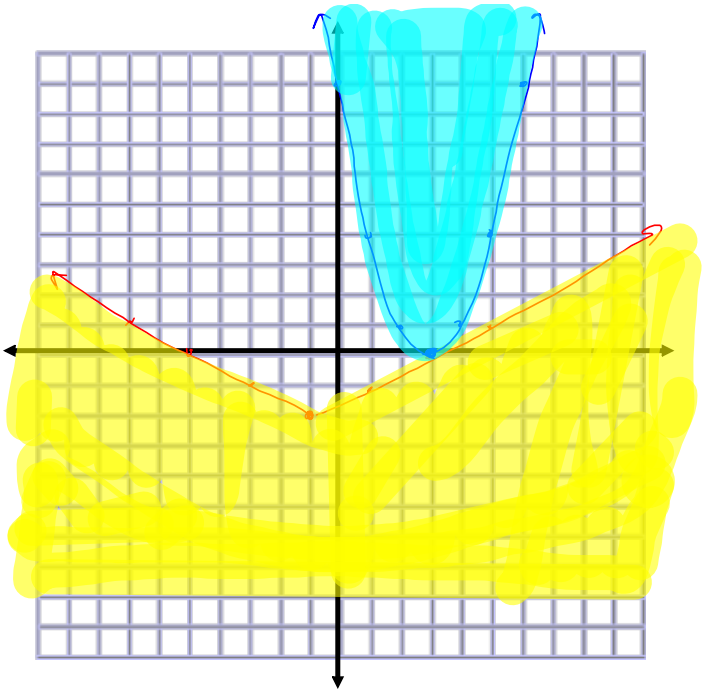
$y \ge x^2 - 6x + 9$

$3^2 - 18 + 9$

$x = \frac{6}{2(1)} = 3$

$(3, 0)$

point



3. $y \le \left(\frac{1}{2}\right)^x$

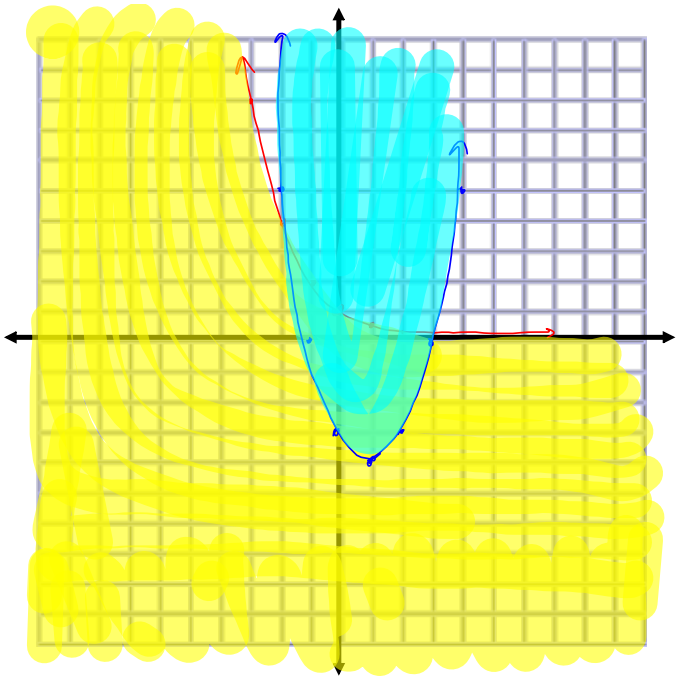
$y \ge (x - 1)^2 - 4$

x	y
0	1
1	½
2	¼
3	⅛
-1	2
-2	4
-3	8

$y = (\frac{1}{2})^{-1}$

$y = 2$

$y = (\frac{1}{2})^{-2}$



4. $y \geq -1$

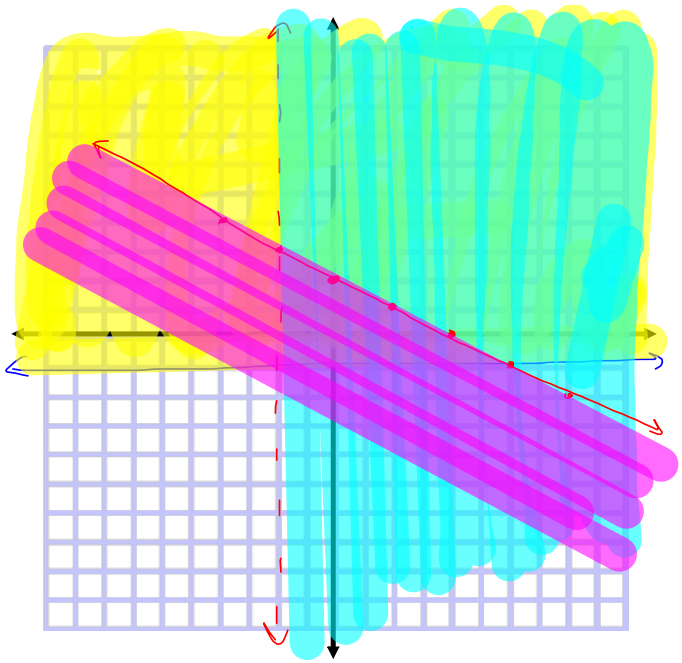
$x > -2$

$x + 2y \leq 4$

$-x \qquad -x$

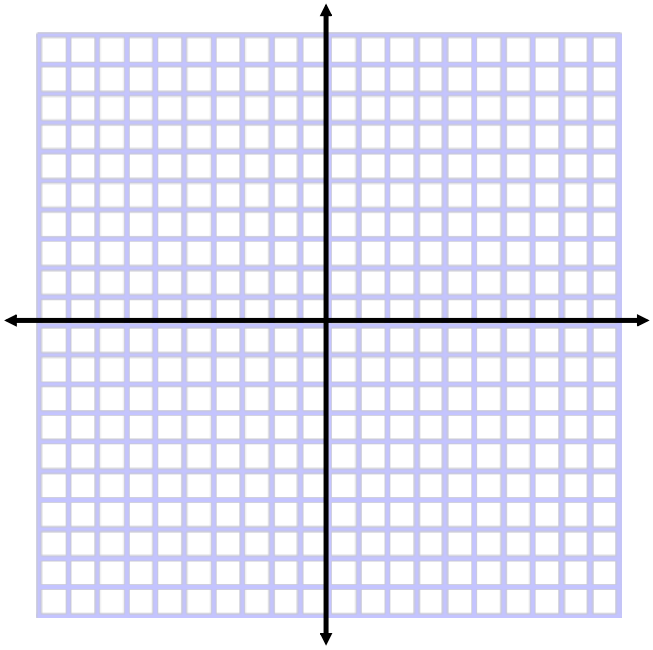
$\frac{2}{2}y \leq \frac{-x}{2} + \frac{4}{2}$

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



5. $y > x^2 + 8x + 6$

$y > -|x + 4| + 4$



Solve with matrices

6. $-3x + y - z = -2$
$2x - y - 2z = -12$
$4x + 2y + z = 1$

7. $x + 3y - z = 12$
$2x + 4y - 2z = 6$
$-x - 2y + z = -6$

8. $x + 5y - 2z = -1$
$-x - 2y + z = 6$
$-2x - 7y + 3z = 7$

9. $x - y + z = 5$
$2y + 3z = 14$
$-3y + 2z = 5$

10. $3x + 2y = -4$
$3y = 1 - x$

11. $y = -3x + 16$
$2x - 3y = 14$

12. $7x + y = 8$
$y - 7z = 50$
$8x + 8z = -48$