$$\frac{x^3-5x+1}{2x+1} = \frac{x^3-5x+1}{2\left(x+\frac{1}{2}\right)} = \frac{1}{2}\left(\frac{x^3-5x+1}{x+\frac{1}{2}}\right)$$

$$\begin{array}{r|cccc} -\frac{1}{2} & 1 & 0 & -5 & 1 \\ & & -\frac{1}{2} & \frac{1}{4} & \frac{19}{8} \\ \hline & 1 & -\frac{1}{2} & -\frac{19}{4} & \frac{27}{8} \end{array}$$

$$x^3-5x+1 = 2\left(x+\frac{1}{2}\right)\left(x^2-\frac{1}{2}x-\frac{19}{4}\right)+\frac{27}{8}$$

$x - y = -5$

$3x + y = 1$

$x - y = -5$

x	y
0	5
-5	0

$-y = -x - 5$

$y = x + 5$

$3x + y = 1$

x	y
0	1
$\frac{1}{3}$	0

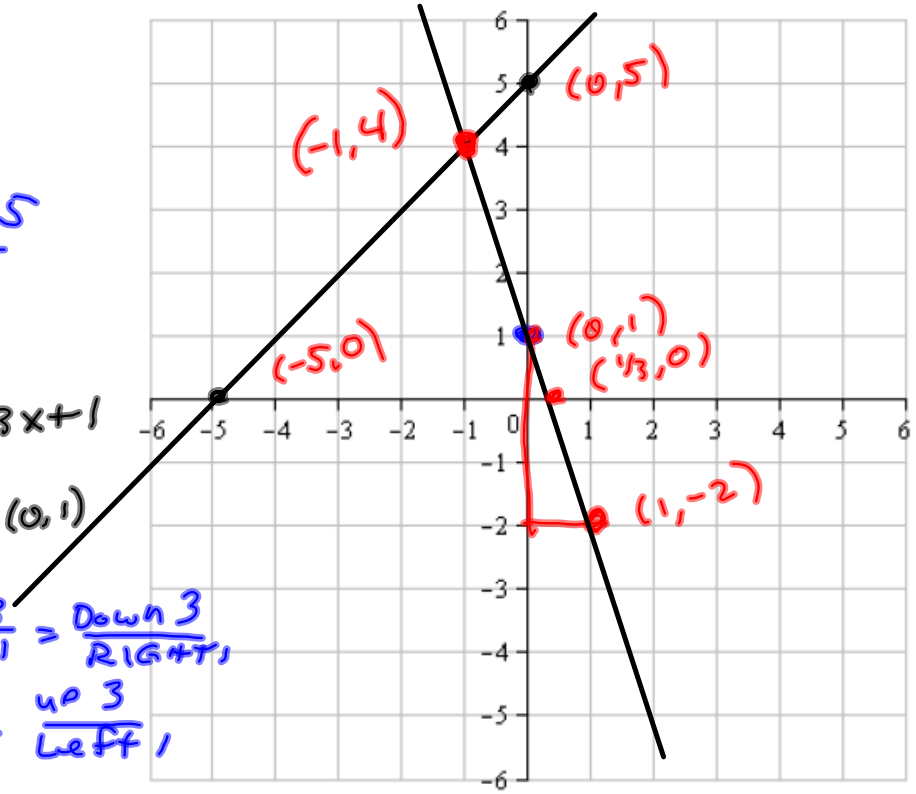
$y = -3x + 1$

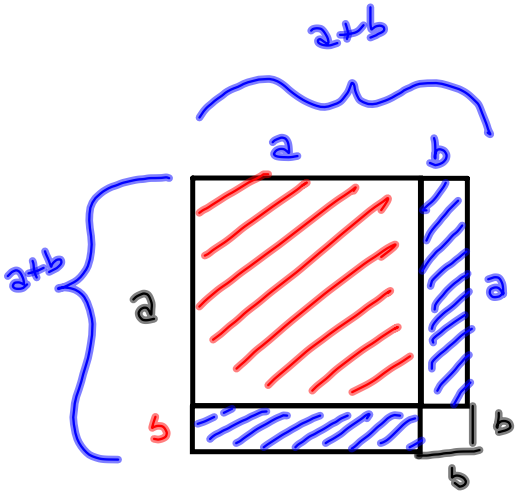
$m = -3$

$(0, b) = (0, 1)$

$-3 = \frac{-3}{1} = \frac{\text{Down } 3}{\text{RIGHT } 1}$

$= \frac{\text{up } 3}{\text{Left } 1}$





$(a+b)^2 = a^2 + 2ab + b^2$

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

$a^2 \quad 2ab$

$2ab = 6x$

$b = \frac{6x}{2a} = \frac{6x}{2x} = 3$

$a^2 = x^2$

so $a = x$

and $2a = 2x$

Solve

$x^2 + 10x - 7 = 0$

by completing the square

write $x^2 + 10x - 7$ in the form $a(x-h)^2 + k$ and graph it.

① $3x^2-12x+6=0$

$3(x^2-4x+2)=0$

$x^2-4x+2=0$

$x^2-4x+2^2=-2+4$

$(x-2)^2=2$

$\sqrt{(x-2)^2}=\sqrt{2}$

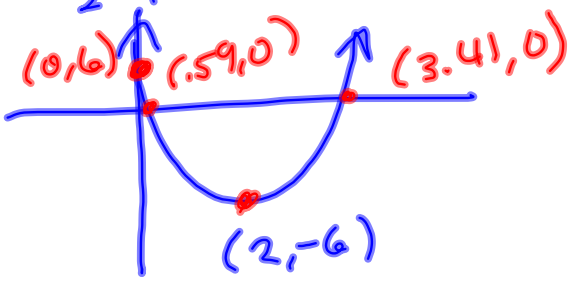
$|x-2|=\sqrt{2}$

$x-2=\pm\sqrt{2}$

$x=2\pm\sqrt{2}$

$2+1.41=3.41$

$2-1.41=.59$



② $3x^2-12x+6$

$=3(x^2-4x+2^2)+6-3(2^2)$

$3(x-2)^2+6-12$

$=3(x-2)^2-6$

$f(x)=3x^2-12x+6$

$f(x)=3(x^2-4x+2)$

$\frac{f(x)}{3}=x^2-4x+2$

$\frac{f(x)}{3}=x^2-4x+2^2-2^2+2$

$\frac{f(x)}{3}=(x-2)^2-4+2$

$\frac{f(x)}{3}=(x-2)^2-2$

$f(x)=3(x-2)^2-3(2)$

$=3(x-2)^2-6$

$=a(x-h)^2+k$

$h=2$

$k=-6$

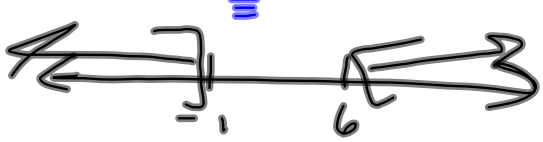
$|2x-5| \geq 7$

$2x-5 \geq 7$ OR $2x-5 \leq -7$

$2x \geq 12$ OR $2x \leq -2$

$\{x \mid x \geq 6$ OR $x \leq -1\}$

$(-\infty, -1] \cup [6, \infty)$



$|2x-5| \leq 7$

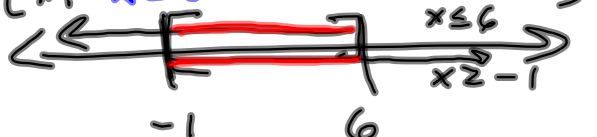
$2x-5 \leq 7$ AND $2x-5 \geq -7$

$2x \leq 12$ AND $2x \geq -2$

$\{x \mid x \leq 6$ AND $x \geq -1\}$

$x \leq 6$

$x \geq -1$



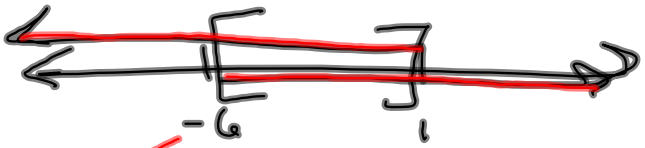
$(-\infty, 6] \cap [-1, \infty)$

$= [-1, 6]$

$|2x-5| \geq -7$ Always

$2x-5 \geq -7$ OR $2x-5 \leq 7$

$x \geq -6$ OR $x \leq 1$



$\{x \mid x \geq -6$ OR $x \leq 1\} =$ ALL REALS

$|2x-5| \leq -7$ Never.

AND

$x \leq -6$ AND $x \geq 1$