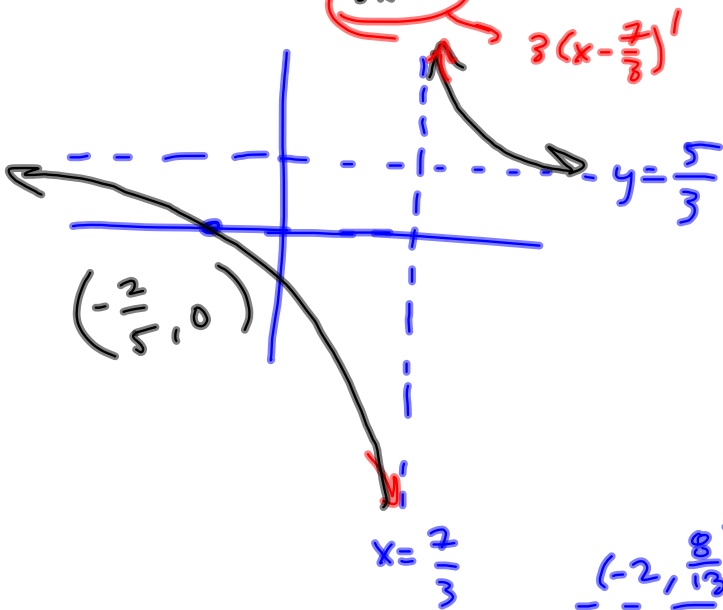


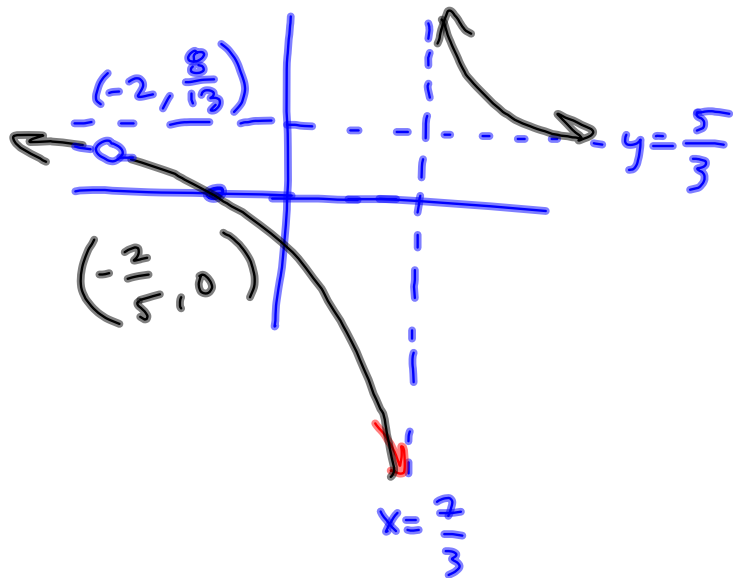
$$f(x) = \frac{5x+2}{3x-7}$$

$$f(x) = \frac{(5x+2)(x+2)}{(3x-7)(x+2)}$$



$$\frac{5(-2)+2}{3(-2)-7} = \frac{-10+2}{-6-7}$$

$$= \frac{-8}{-13}$$



Solve $x^2 - 6x + 11 = 0$ by completing the square.

$$x^2 - 6x = -11$$

$$x^2 - 6x + 3^2 = -11 + 9$$

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

$$x-3 = \pm \sqrt{-2} = \pm i\sqrt{2}$$

$$x = 3 \pm i\sqrt{2}$$

Solving
an equation
by completing
the square

Spool: $f(x) = x^2 - 6x + 11$

$$a=1, b=-6, c=11$$

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

$$(h, k) = (3, 2)$$

$$f(3) = 3^2 - 6(3) + 11$$

$$f(x) = 1(x-3)^2 + 2$$

$$= 9 - 18 + 11$$

$$= 2$$

Now Solve:

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

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

etc.

Completing the square
to manipulate an
expression.

$$f(x) = x^2 - 6x + 11$$

$$= x^2 - 6x + 3^2 - 9 + 11$$

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

setup for graphing

$$x^2 - 6x + 11 \geq 0$$

$$\Rightarrow x \in \mathbb{R}$$

ALL Reals.

So, $f(x) = (x-7)(x+1) + 18$

$$\frac{x^2 - 6x + 11}{x-7} = x+1 + \frac{18}{x-7}$$

What's $f(7)$ Clay
Keli:

$$\begin{array}{r} 7 \overline{) 1 \quad -6 \quad 11} \\ \underline{ 1 \quad -6 \quad 11} \\ 0 \quad 0 \quad 0 \end{array}$$

$18 = f(7)$

