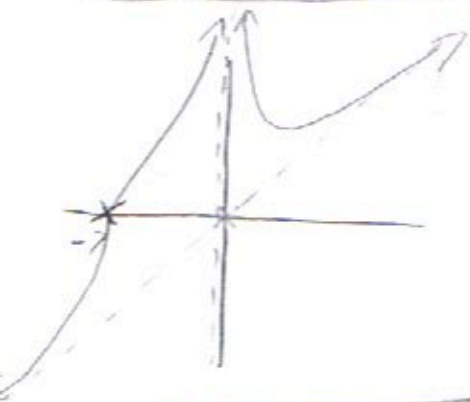


$$13) \quad y = \frac{(x+7)(x^2+7)}{x^2} \rightarrow \frac{x^3}{x^2} = x$$



$$14) \quad y = 4 + \frac{(x-2)^2}{x}$$

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

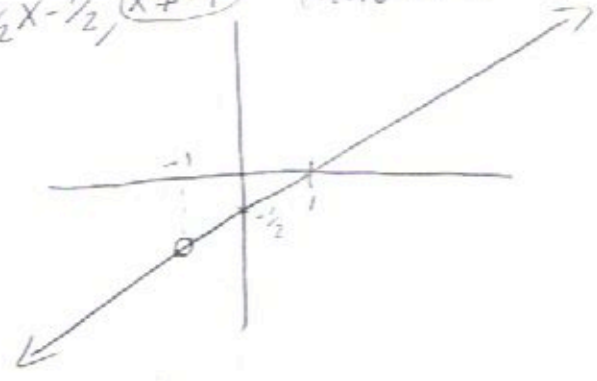
$$= \frac{4x + x^2 - 4x + 4}{x}$$

$$y = \frac{x^2 + 4}{x} \rightarrow \frac{x^2}{x} = x$$



$$15) \quad y = \frac{x^2-1}{2(x+1)} = \frac{(x+1)(x-1)}{2(x+1)}$$

$$= \frac{1}{2}x - \frac{1}{2}, \quad (x \neq -1) \quad (\text{Hole at } x = -1)$$

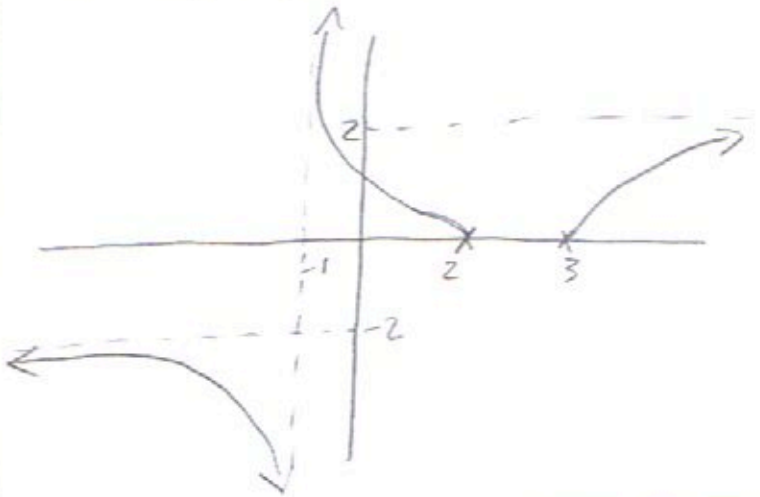


$$16) \quad y = \frac{\sqrt{4x^2 - 20x + 24}}{x+1}$$

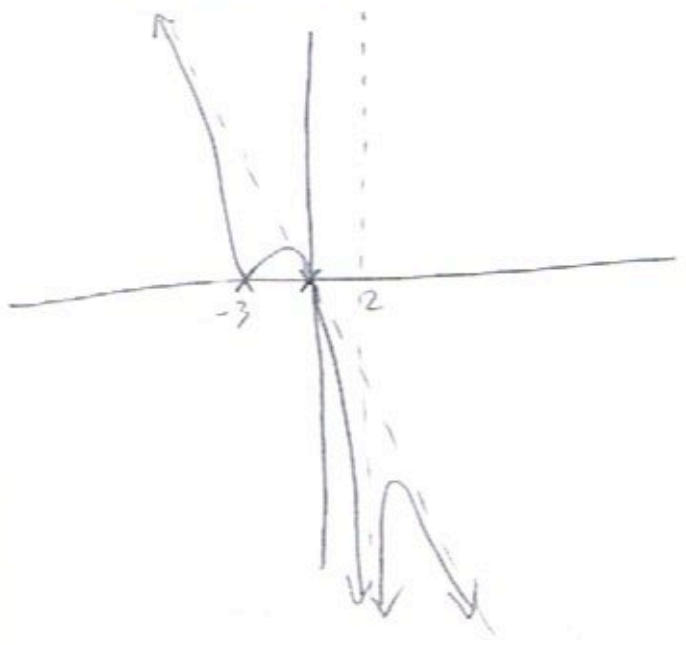
$$\rightarrow \frac{\sqrt{4x^2}}{x} = \frac{2|x|}{x} = \begin{cases} 2, & x \rightarrow a \\ -2, & x \rightarrow -a \end{cases}$$

$$y = \frac{2\sqrt{x^2 - 5x + 6}}{x+1} = \frac{2\sqrt{(x-3)(x-2)}}{x+1}$$

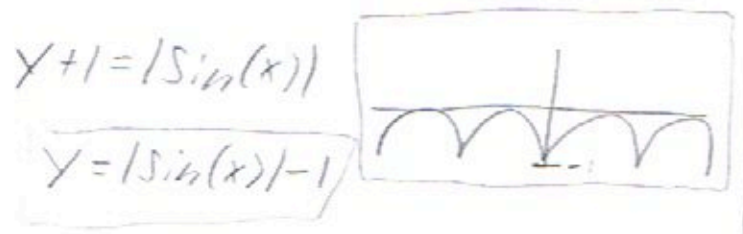
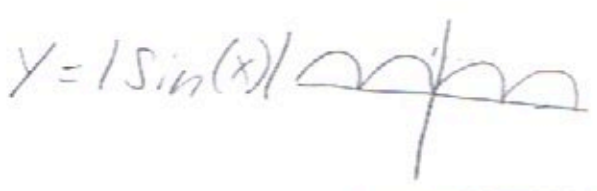
The $\sqrt{\quad}$ Has a Negative For $x \in (2, 3)$.



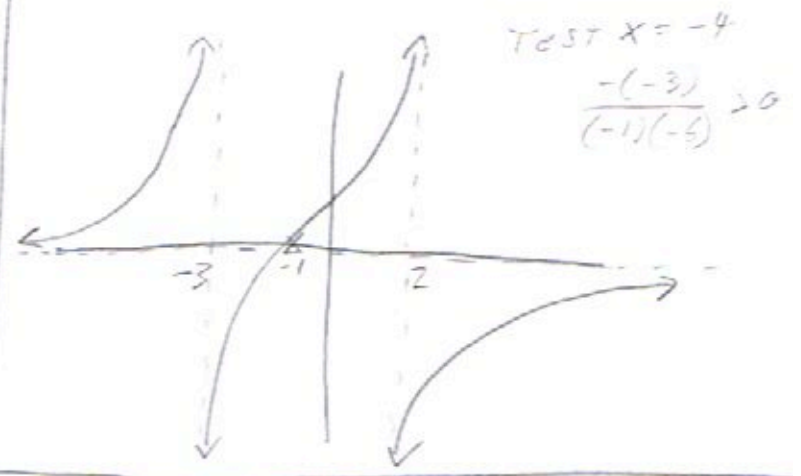
$$17) \quad y = -\frac{3x(x+3)^2}{(x-2)^2} \rightarrow -\frac{3x^3}{x^2} = -3x$$



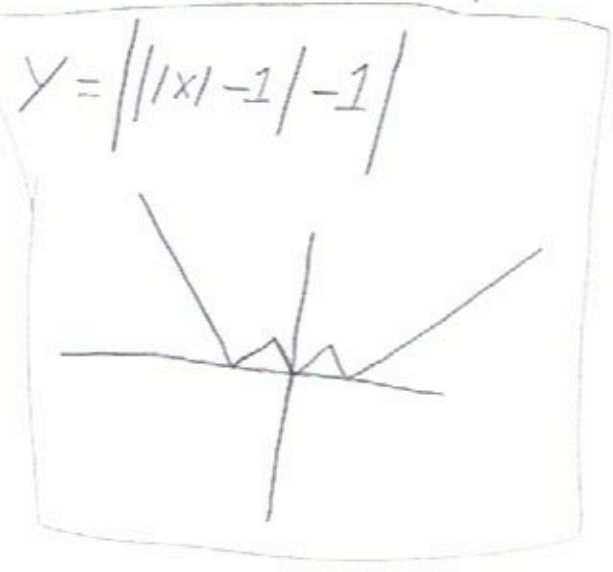
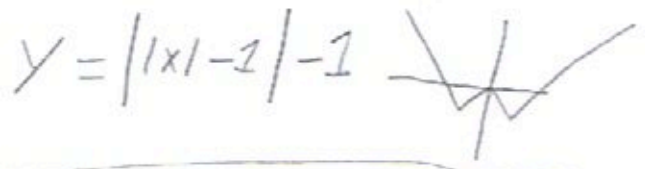
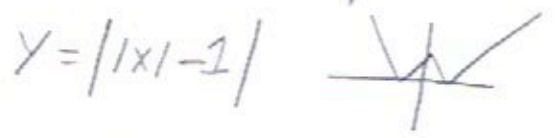
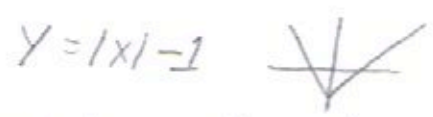
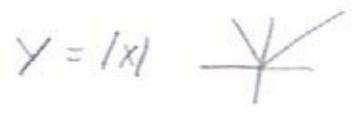
18) $y = |\sin(x)| - 1$



20) $y = \frac{-(x+1)}{(x+3)(x-2)} \rightarrow \frac{-x}{x^2} = \frac{-1}{x} \rightarrow 0$

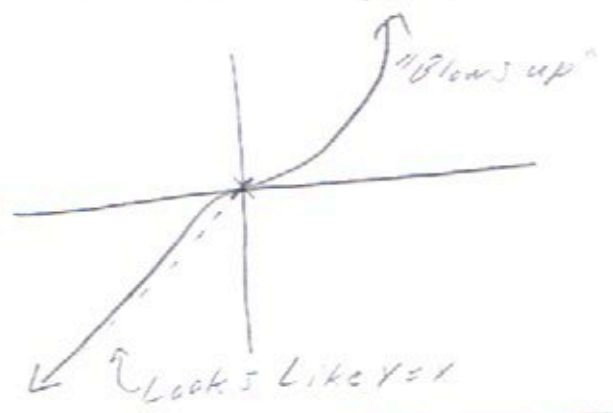


19) $y = ||x| - 1| - 1$



21) $y = x(e^x + 1)$

e^x Blows up as $x \rightarrow \infty$
 $e^x \rightarrow 0$ as $x \rightarrow -\infty$

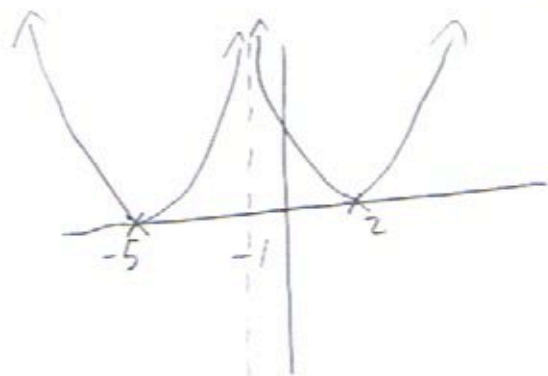


22) $y = x - \frac{1}{x} = \frac{x^2}{x} - \frac{1}{x} = \frac{x^2 - 1}{x} = \frac{(x+1)(x-1)}{x} \rightarrow \frac{x^2}{x} = x$



$$23) \quad y = \frac{(x-2)^2(x+5)^2}{(x+1)^2}$$

$\rightarrow \frac{x^4}{x^2} = x^2$, Blows up
No Horizontal
or Slant Asymptotes



$$24) \quad y = \frac{e^x - e^{-x}}{e^x + e^{-x}}$$

as $x \rightarrow \infty$ $y \rightarrow \frac{e^x}{e^x} = 1$

as $x \rightarrow -\infty$ $y \rightarrow \frac{-e^{-x}}{e^{-x}} = -1$

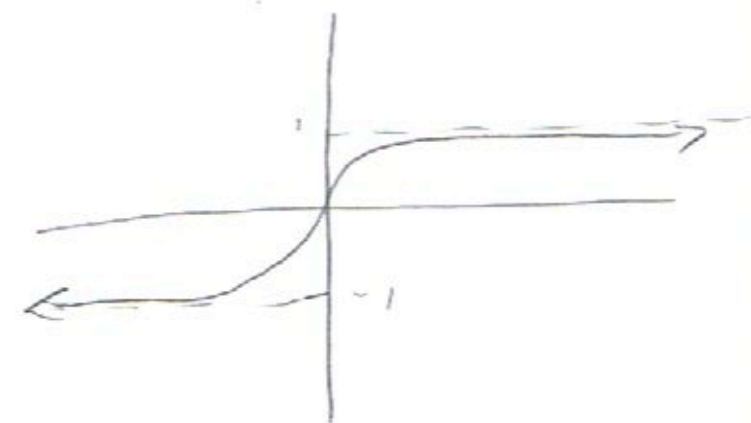
$$e^x - e^{-x} = 0$$

$$e^x = e^{-x}$$

$$x = -x$$

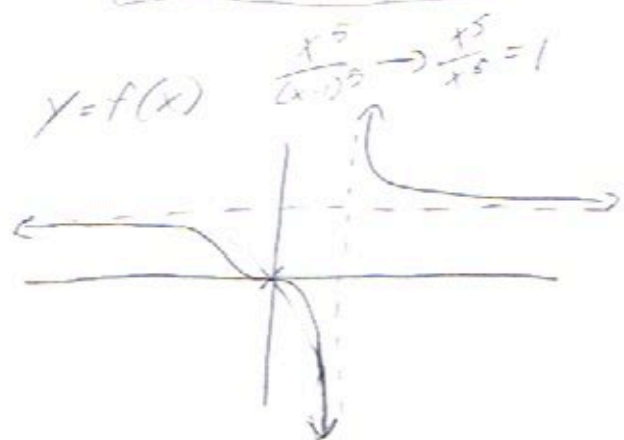
$$2x = 0$$

$$x = 0$$

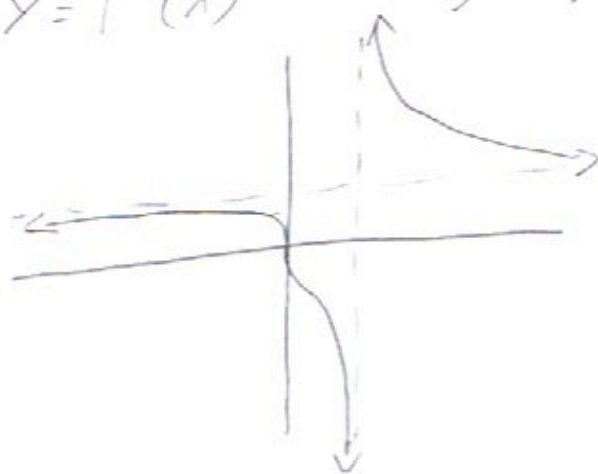


$$25) \quad f(x) = \frac{x^5}{(x-1)^5}$$

Graph $f^{-1}(x)$



$y = f^{-1}(x)$ (Flip over Diagonal)



Not Actually Exactly
The Same.

Graph it on Your
Calculator.