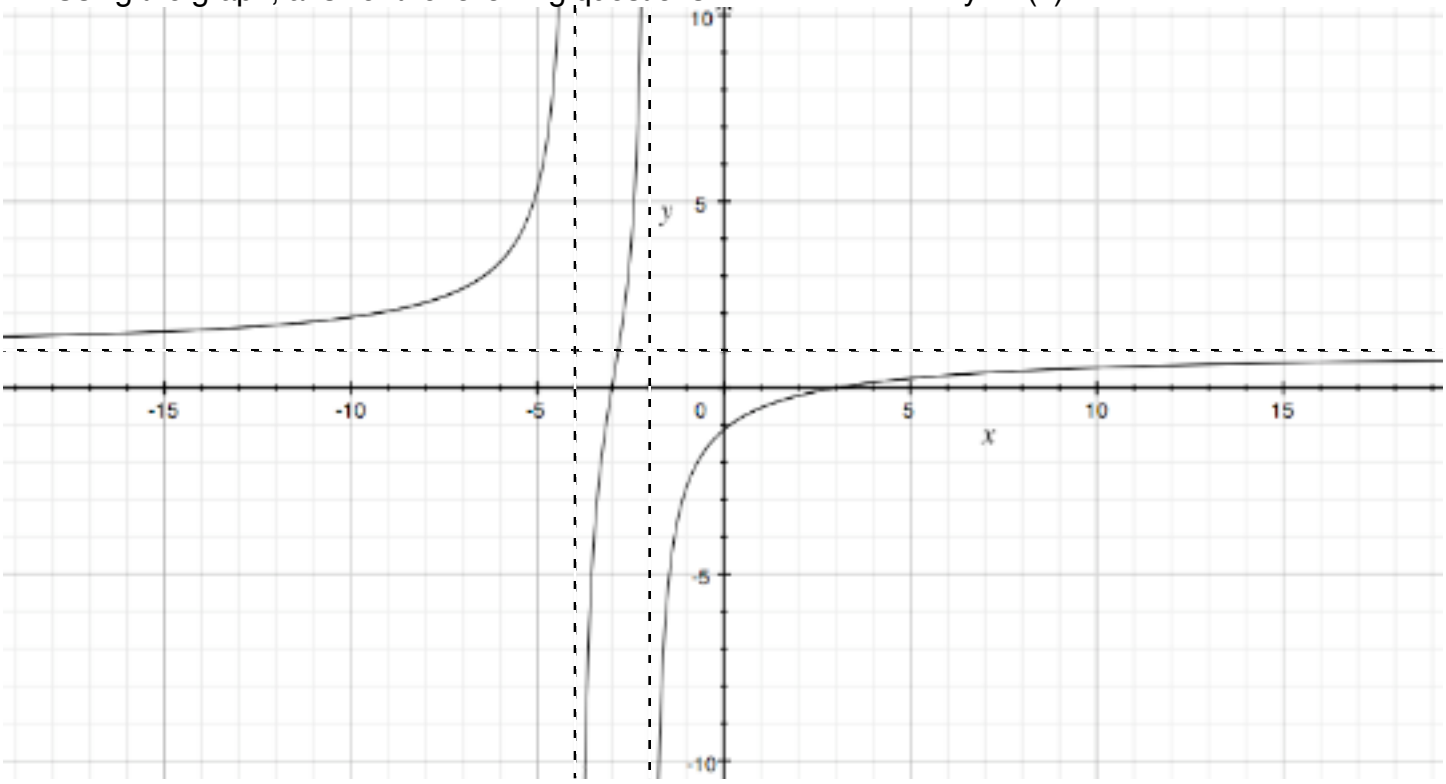
Name: _____

Classwork 3

1. Expand $(x + 1)^8$.

2. Using the graph, answer the following questions. y = f(x)



a) Find $\lim_{x \to \infty} f(x)$

b) Find $\lim_{x \to -\infty} f(x)$

c) Find $\lim_{x \to -2} f(x)$

d) Find $\lim_{x \to 3} f(x)$

e) If $f(x) = \dfrac{x^2 - 9}{x^2 + 6x + 8}$, pick an x value nearby to show that your limit answer makes sense.

-An x- value near ∞ :

- An x- value near - ∞:

-An x- value near -2:

-An x-value near 3:

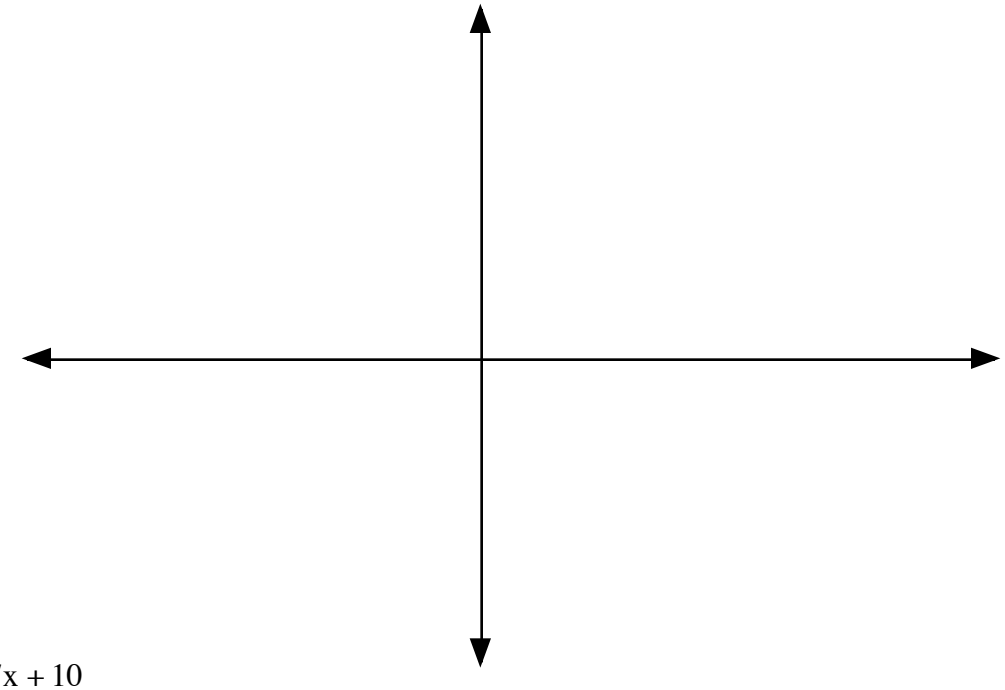
3. Fill out the chart below for y = $\frac{x^2+7x+10}{x+2}$. (Hint: use the table feature & tblset on your calculator.)

x	y	x	y
-1.8		-2.2	
-1.9		-2.1	
-1.95		-2.05	
-1.99		-2.01	
-1.999		-2.001	
-1.9999		-2.0001	

Predict the value for x = -2.

What actually happens if you plug in x = -2?

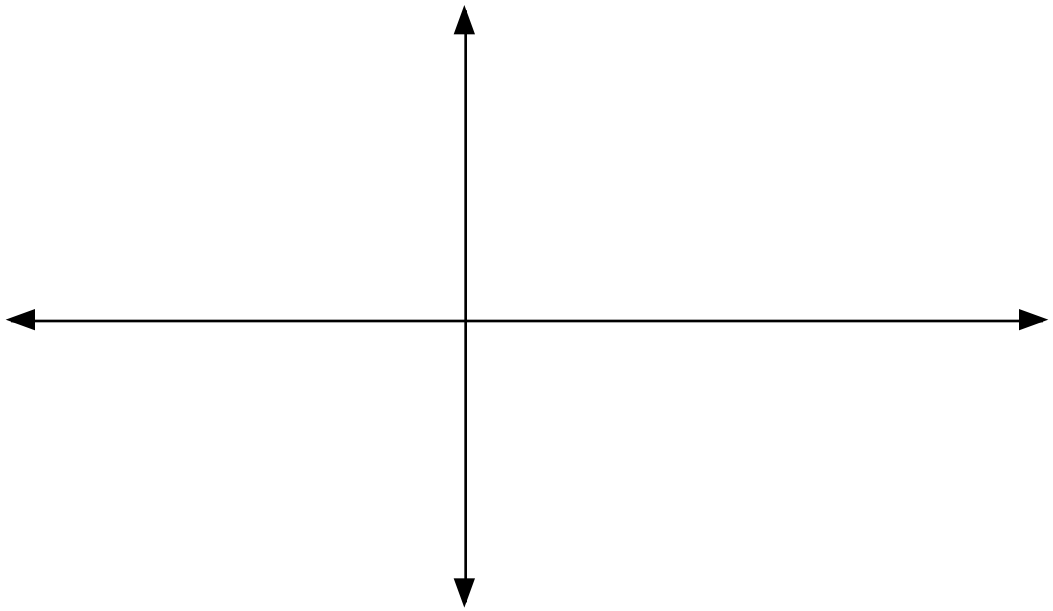
Graph this function using the calculator & sketch a graph on your paper.



Find $\lim_{x \to -2} \frac{x^2+7x+10}{x+2}$

4.a) Find $\lim_{x \to \infty} \frac{\sqrt{x^4 - 16}}{2x^2 + 5}$ using the table function on your calculator.

b) Use a graph to show that your answer is correct.



5. a) Find $\lim_{x \to 4} \frac{x^2 - 7x + 12}{x - 4}$ using the table function.

b) Describe the graph at x = 4

c) Why can't you just evaluate the original expression at x = 4 to find the limit?

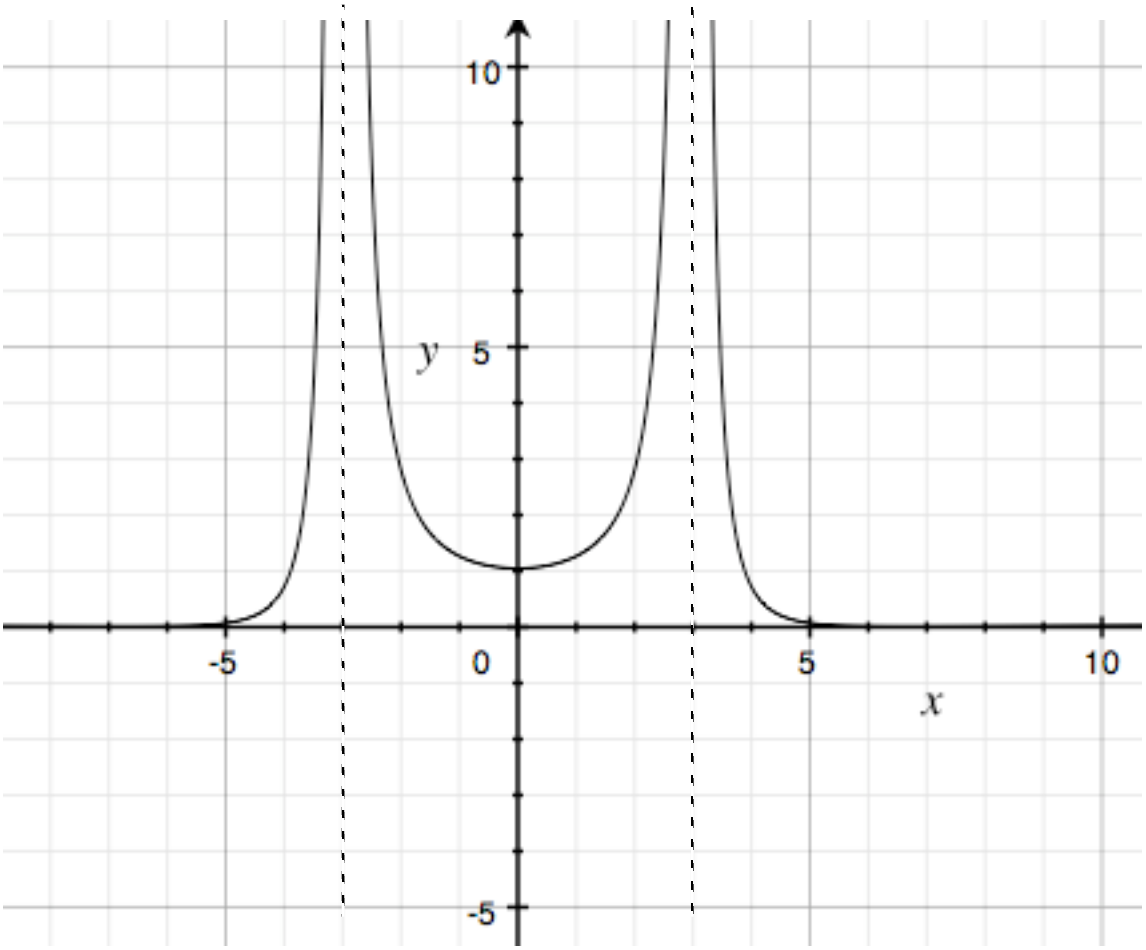
d) Is there an easier way we could do this problem?

Practice Problems

1. Use the graph below to find the limits.

a) $\lim_{x \to -3} f(x)$

b) $\lim_{x \to \infty} f(x)$



2. Use a calculator (or your imagination) to find $\lim_{x \to \infty} \frac{3x^2 + 10}{x^2 - 4}$