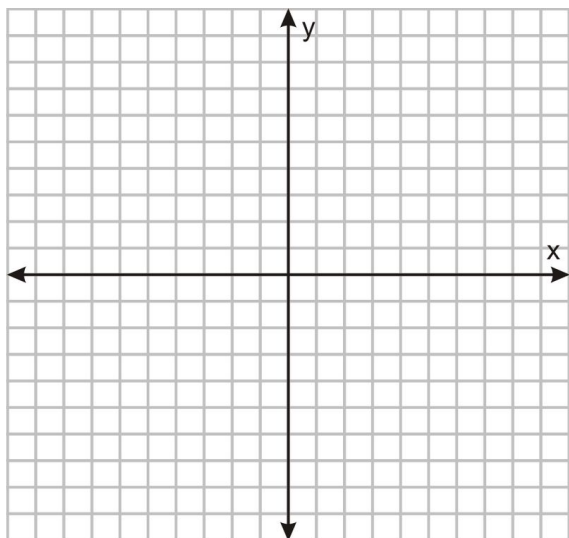
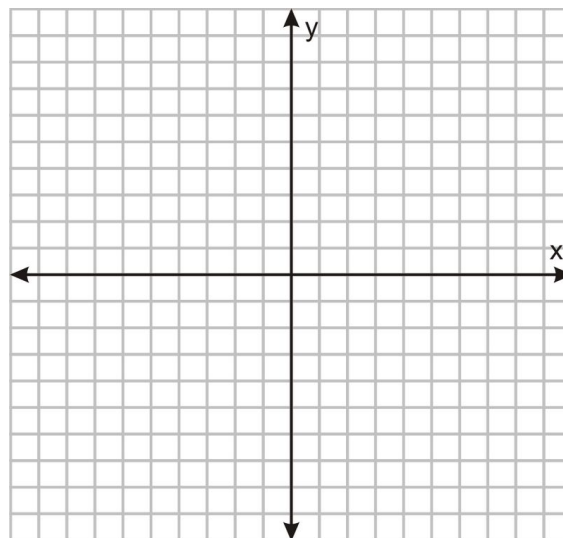


1. Warm Up: With your table partner, one of you will graph the function (1) $f(x) = \frac{x+3}{x-2}$ and the other partner will graph the function (2) $f(x) = \frac{x^2+5x+6}{x^2-4}$ on your calculators. Sketch both of those below.

1



2.

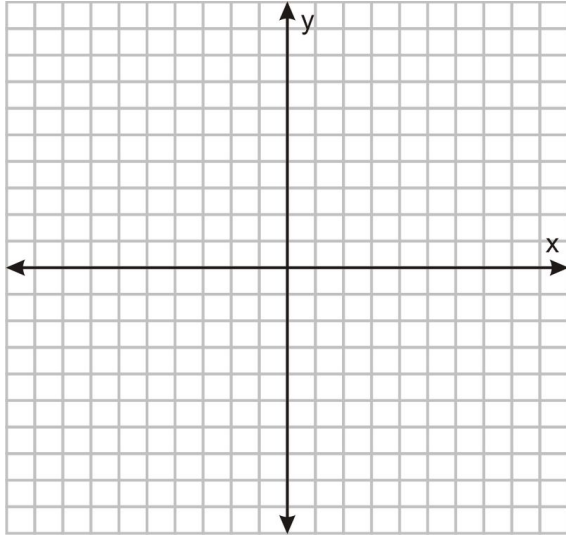


a. What do you notice about the graphs? Why do you think they are that way?

b. What is the feature of the graph called at $x = 2$? Write a definition for this feature in your own words.

c. Why does this occur at $x = 2$? Why is that value important in the function?

2. Sketch the graph of the function $f(x) = \frac{3x^2+5x-2}{7x^2+12x-4}$ then simplify it using factoring.



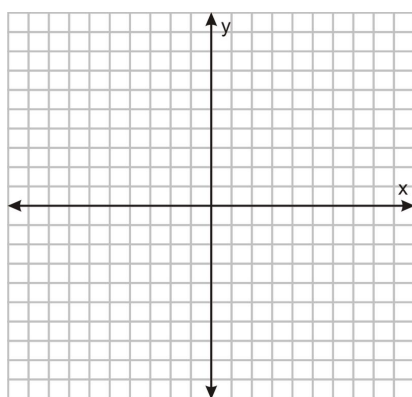
3. Where is there an asymptote on the function above? How can we use the function, not the graph, to find it?

4. Simplify the function $f(x) = \frac{2x^2+16x+24}{x^2-x-6}$ and determine where the asymptote(s) of the function occur.

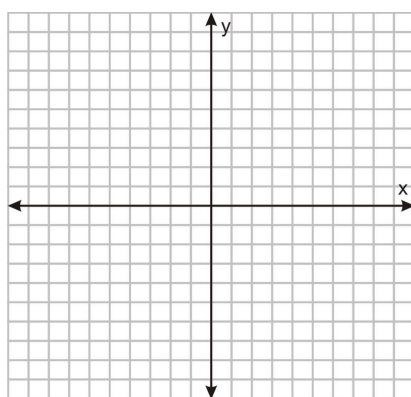
Simplify each of the following, state where there is an asymptote in the graph, then sketch the graph.

1. $f(x) = \frac{x-2}{x^2+4x-12}$

2. $f(x) = \frac{x^2+11x+18}{x^2+x-2}$



3. $f(x) = \frac{3x^2+21x-90}{3x^2+31x+10}$



4. $f(x) = \frac{3x^2-39x+90}{x^2-3x-70}$

