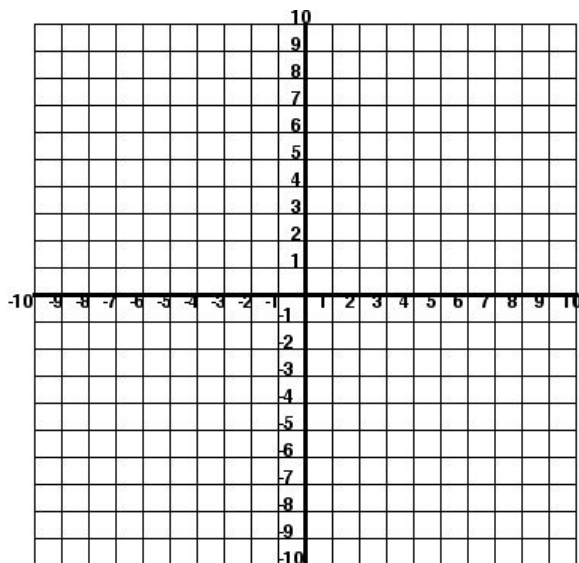


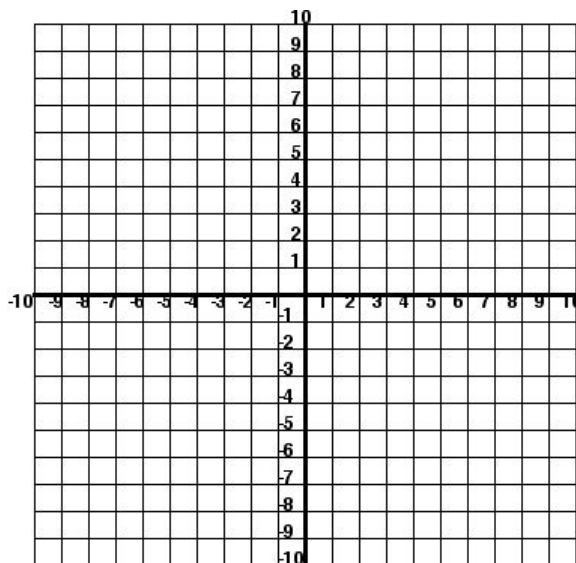
8-2 Graphing Rational Functions in Standard Form ~ Notes

A. Discovery - Using graphing technology, graph each function as accurately as possible. Use "ZOOM 6" to display a window that matches the graphs below. The "TRACE" button is a good tool to guide you. **Use parenthesis around numerators / denominators containing more than one term.**

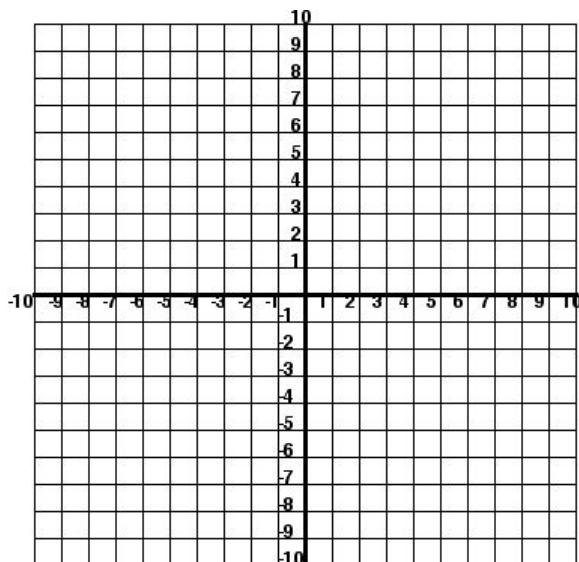
#1 $y = \frac{2}{x} - 5$



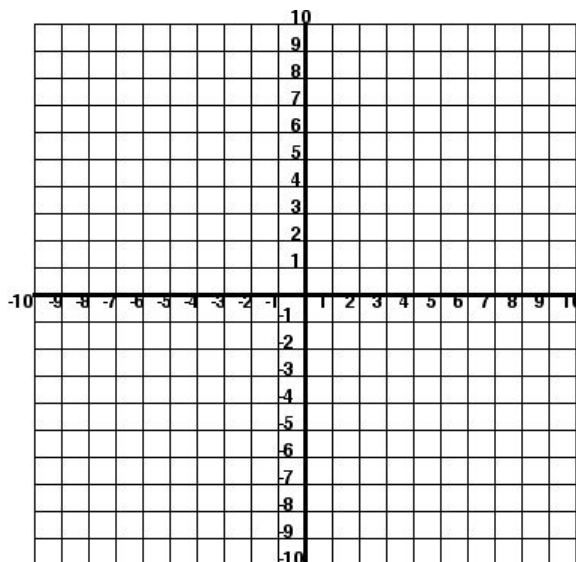
#2 $y = \frac{2}{x+5}$



#3 $y = \frac{2}{x-5} + 3$

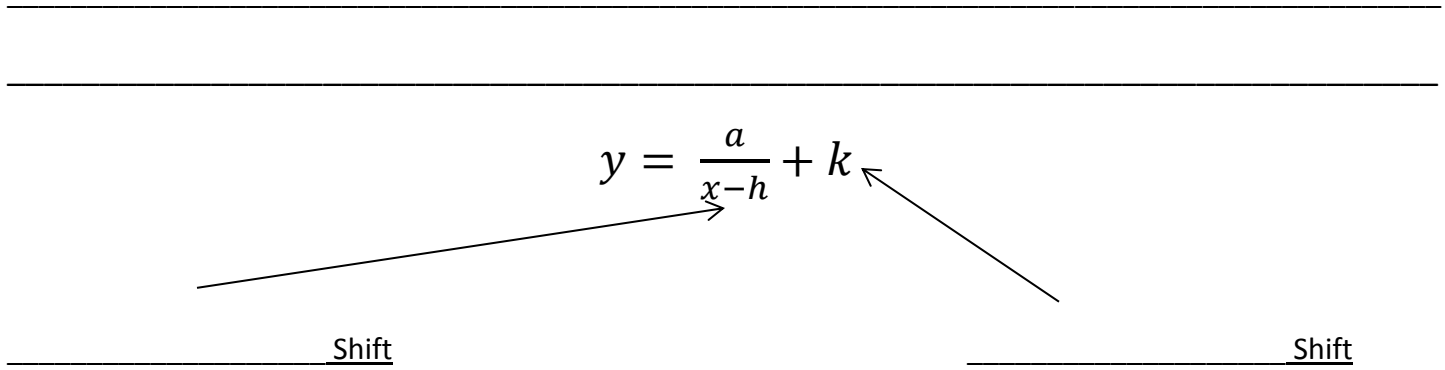


#4 $y = \frac{2}{x-5} - 3$



Examine each graph in relation to its corresponding equation. Focus on regions where the graph does not exist. You may want to use your calculator's "table" (top right) to identify trends.

Why do you believe these “trends” exist? Complete the diagram below.

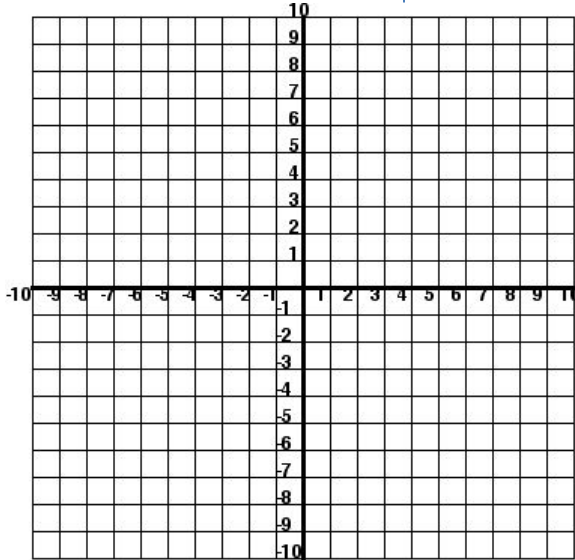
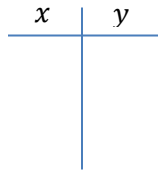


Why is h being subtracted and not added? _____

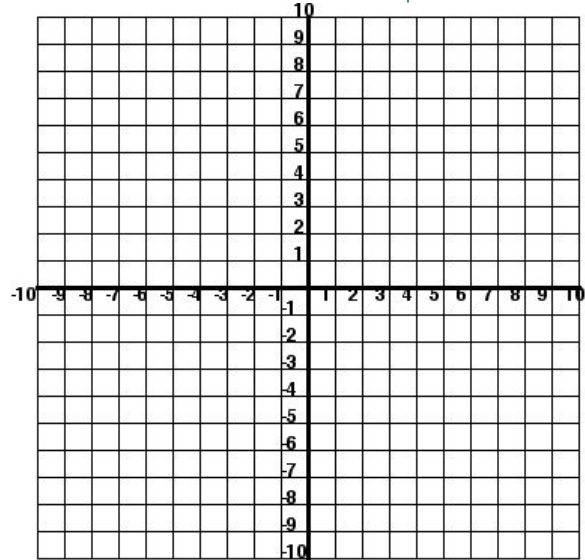
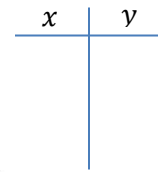
B. **Asymptote** – an invisible boundary line where the graph of a function does NOT exist, but approaches. They occur because it is NOT possible to _____.

C. Practice – Graph by hand.

#1 $f(x) = \frac{10}{x+2} - 3$



#2 $y = -\frac{2}{x} - 3$



D. Write the equation of $y = \frac{3}{x}$ with the given asymptotes.

#1 $x = 3$ and $y = -4$

#2 $x = -1$ and $y = 2$