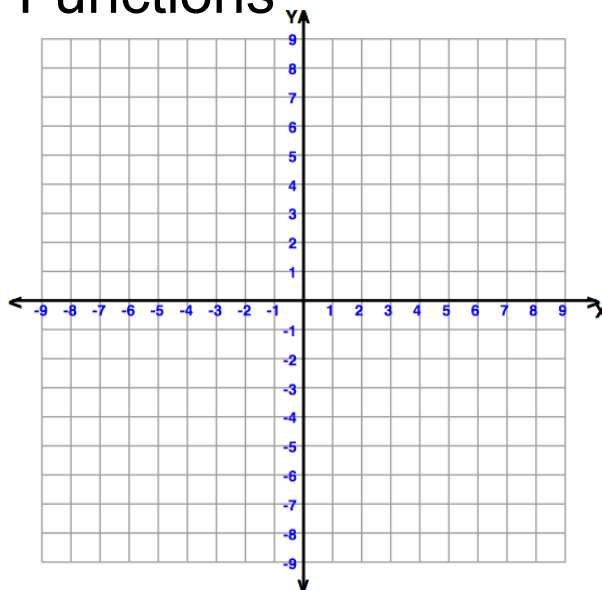
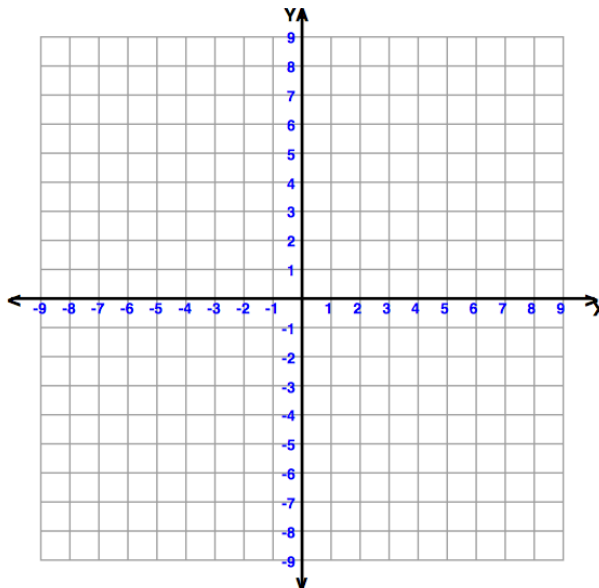


10-2b Graphing Rational Functions

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



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



Non-Horizontal End Behavior

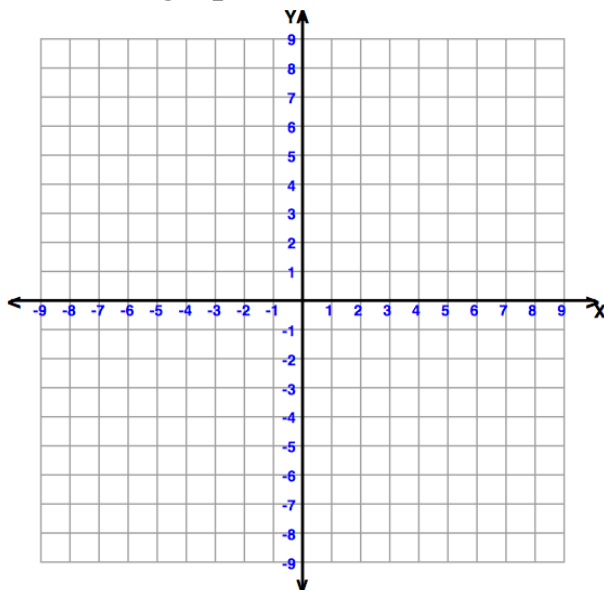
Top heavy rational functions have non-horizontal end behaviors

To find the degree of the end behavior **model (EBM)** - divide the leading terms and reduce.

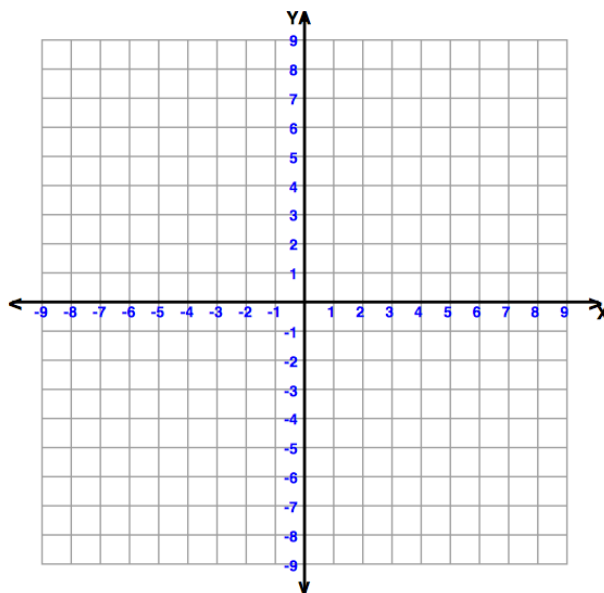
the ends of $\frac{3x^5 - 4x^2 + 5}{2x^3 - 5x + 4}$ will behave like $\frac{3x^5}{2x^3} = \frac{3x^2}{2}$

Ex. 5 Find all asymptotes/EBM, holes and graph.

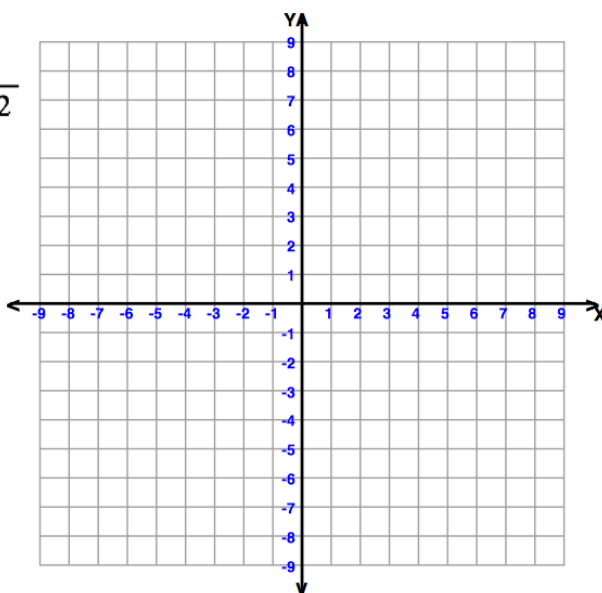
a. $f(x) = \frac{x^3}{x^2 - 9}$



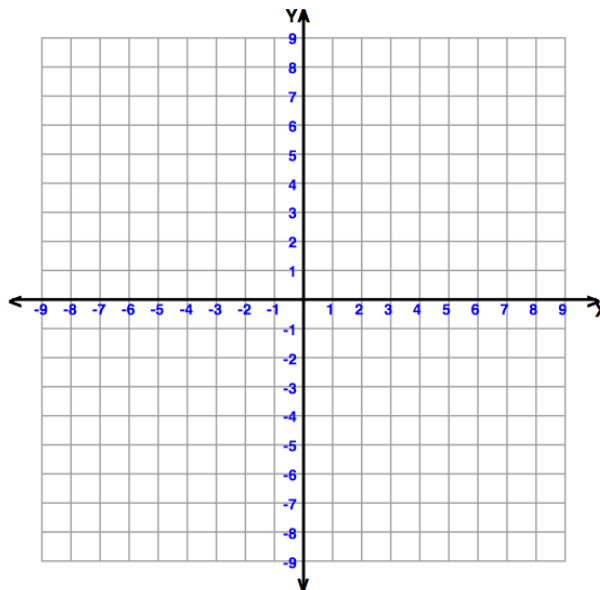
b. $f(x) = \frac{x^2 - 9}{x^2 - 5x + 6}$



c. $f(x) = \frac{-(x+1)(x+2)}{(x+3)(x+2)(x-1)^2}$

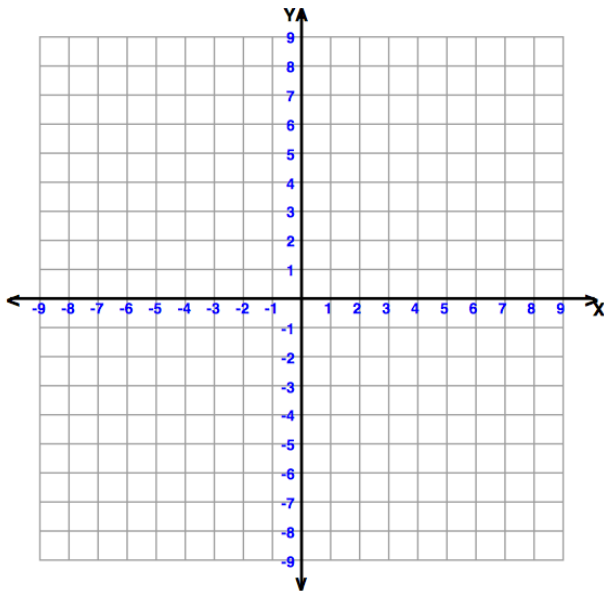


d. $f(x) = \frac{x(x+3)(x+2)}{x^2 - 4}$



Find the intercepts, asymptotes, limits at vertical asymptotes, analyze and draw the graph of

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



Domain

Range

x-intercepts

y-intercepts

VA

HA

Increasing

Decreasing

Continuous

Asymptote Behavior

End Behavior