

Objectives

List of objectives for Module 12L - Graphing Rational Functions.

In this last Module, we go back to rational functions. Previously, we only graphed “basic” rational functions that were in the form

$$f(x) = \frac{a}{(x-h)^n} + k$$

Now that we have covered how to divide two polynomials (Synthetic Division) and explored the limit of a function as it approaches a value, we can graph “general” rational functions of the form

$$f(x) = \frac{a_n x^n + a_{n-1} x^{n-1} + \cdots + a_1 x + a_0}{b_n x^n + b_{n-1} x^{n-1} + \cdots + b_1 x + b_0}$$

The objectives for this homework are:

- (a) Use limits to determine the holes of a rational function.
- (b) Use limits to determine the vertical asymptotes of a rational function.
- (c) Use limits to determine the horizontal asymptotes of a rational function.
- (d) Use limits to determine the oblique asymptotes of a rational function.