Names: _____ _____ _____

College Algebra Activity #6: Rational Functions

1. Find the domain of the following rational function.

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

2. Find the long-term behavior asymptote of the following rational function.

$$f(x) = \frac{x^3 - 3x^2 - x + 3}{x + 5}$$

3. Consider the following rational function.

$$f(x) = \frac{(x-1)^3(x-2)^4(x-3)^1}{(x-1)^6(x-2)^1(x-3)^3}$$

For each point c not in the domain of f, determine whether f has a hole or a vertical asymptote at c.

4. Find the long-term behavior and vertical asymptotes of the rational function

$$f(x) = \frac{x^5 - 11x^3 + 6x^2 + 28x - 24}{x^3 - 6x^2 + 11x - 6}.$$