Names: _____ _____ _____

College Algebra Activity #6: Rational Functions

1. Find the domain of the following rational function.

$$f(x) = \frac{x^2 - 3x + 2}{x^3 - 2x^2 - 4x + 8}$$

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

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

3. Consider the following rational function.

$$f(x) = \frac{(x-1)^2(x-2)^5(x-3)^1}{(x-1)^5(x-2)^1(x-3)^2}$$

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

$$f(x) = \frac{x^5 - 7x^4 + 3x^3 + 55x^2 - 112x + 60}{x^3 - x^2 - x + 1}.$$