

Name: _____

Score: _____ /15

Worksheet 10 (Due Tue, May 20)

Math 1060Q – Summer 2014

Professor Hohn

You must show all of your work to receive full credit!

1. Find the hole(s) (if any) of the graph of the given function.

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

(b) $h(x) = \frac{4}{x^2 - x}$

(c) $q(x) = \frac{x^2 - 3x}{x^3 + 2x^2 - 15x}$

$$(d) r(x) = \frac{x^2 - 4}{x^2 - 4x + 4}$$

2. Find the vertical asymptote(s) of the graph of the given function.

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

$$(b) h(x) = \frac{5}{x^2 - x}$$

$$(c) q(x) = \frac{x^2 - 3x}{x^3 + 2x^2 - 15x}$$

$$(d) r(x) = \frac{x^2 - 6}{x^2 - 4x + 4}$$

3. Determine the end behavior of the graph of the given function.

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

$$(b) g(x) = \frac{(x - 1)(x + 2)}{x(x + 1)(x - 3)}$$

$$(c) h(x) = \frac{3x^3 - x + 5}{250x^2 + 60x}$$

4. For the given function, find all zeros, vertical asymptotes, and holes, and determine the end behavior of the function. Then, sketch the graph of the function, labeling any vertical asymptotes, axis intercepts, and end behavior.

(a) $g(x) = \frac{5}{3-x}$

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