CURVE SKETCHING

BLAKE FARMAN

Lafayette College

Name: _____

1. Sketch the curve

$$f(x) = 3x^4 - 8x^3 + 6x^2$$

(a) State the domain of f.

(b) Find the intercepts and express them as an (x, y) pair. Write NONE if there are none.

    x-intercept(s): _____

    y-intercept: _____

(c) Is the function even, odd, or neither? What type of symmetry does the function have?

(d) Find the asymptotes. Write NONE if there are none.

Horizontal: _____

Vertical: _____

(e) Find the intervals where the function is increasing and decreasing. Write NONE if not applicable.

Increasing: _____

Decreasing: _____

(f) State the local maximum and local minimum value(s). Write NONE if not applicable.

Local maximum value(s): _____

Local minimum value(s): _____

(g) Find the intervals on which the function is concave up and concave down. State the inflection points. Write NONE if not applicable.

Concave Up: _____

Concave Down: _____

Inflection Points: _____

(h) Use your answers to Parts (a)-(g) to sketch the curve. Be sure that your graph is labeled and neat.

2. Sketch the curve

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

(a) State the domain of f.

(b) Find the intercepts and express them as an (x, y) pair. Write NONE if there are none.

x-intercept(s): _____

y-intercept: _____

(c) Is the function even, odd, or neither? What type of symmetry does the function have?

(d) Find the asymptotes. Write NONE if there are none.

Horizontal: _____

Vertical: _____

(e) Find the intervals where the function is increasing and decreasing. Write NONE if not applicable.

Increasing: _____

Decreasing: _____

(f) State the local maximum and local minimum value(s). Write NONE if not applicable.

Local maximum value(s): _____

Local minimum value(s): _____

(g) Find the intervals on which the function is concave up and concave down. State the inflection points. Write NONE if not applicable.

Concave Up: _____

Concave Down: _____

Inflection Points: _____

(h) Use your answers to Parts (a)-(g) to sketch the curve. Be sure that your graph is labeled and neat.