

NAME _____

HOMEWORK _____% EXAM _____% GRADE _____%

Completely analyze the following function. Be sure to write "none" if this function does not have a characteristic listed below.

Consider the function $f(x) = \frac{x^2 - 1}{x^2 - 9}$.

1. Give the ordered pairs representing the intercepts.
 - a. (1 POINT) x-intercept: _____

 - b. (1 POINT) y-intercept: _____

2. Write the lines representing the horizontal and vertical asymptotes.
 - a. (1 POINT) Vertical asymptote(s): _____

 - b. (3 POINTS) Horizontal asymptote(s): _____

5. Run the test for concavity and find any points of inflection.
a. (8 POINTS) Test for concavity.

b. (2 POINTS) f is concave upwards on _____.

c. (2 POINTS) f is concave downwards on _____.

d. (2 POINTS) Give the ordered pairs which represent points of inflection.

6. (4 POINTS) Sketch the graph, using the information from your analysis. Find additional ordered pairs as needed. Be sure to label your axes and write in the scale.

