

Extra Credit - 10 points possible

This is due in my hands no later than the beginning of class Wednesday, July 31.

Show all relevant work. Make your work neat, I will take off points if I cannot easily read your answers. All are worth one point except number ?? which is worth four.

Consider the function:

$$f(x) = \frac{x^3 - 8x^2 + 5x + 4}{x^3 - 1}$$

1. Find the domain of f .
2. Find the intervals where f is increasing and decreasing.
3. Find all local maxima and minima. (Remember to test critical points)
4. Find the intervals where f is concave up and concave down.
5. Find all inflection points of f . (Remember to test if it is an inflection point)
6. Find all asymptotes of f .
7. Sketch the graph of f . Label local extrema, inflection points, asymptotes.