Math 1210 **Name:** _____

Worksheet 7 **July 23, 2020**

Ex 1. Determine where the following function is concave up and where it is concave down. Additionally, find the inflection points(s) of the function. If none exist, write "DNE".

$$q(x) = 8x^3 - 12x^2 + 5x - 9$$

Ex 2. Determine where the following function is concave up and where it is concave down. Additionally, find the inflection points(s) of the function. If none exist, write "DNE".

$$h(x) = \frac{x^3 + 1}{2x}$$

Ex 3. Sketch the graph of the function f such that the following holds:

i) f has a vertical asymptote at $x = 1$

ii) $\lim_{x\to-\infty} f(x) = \lim_{x\to\infty} f(x) = 1$

iii) f is concave down and decreasing on $(-\infty, 1)$

iv) f is concave up and decreasing on $(1, \infty)$.