Calculus 12
9-4 Concavity and Points of Inflection

1. Find the intervals on which the curve is concave upward or concave downward, state the points of inflection and sketch the curve.

a) $y = 2 + 5x - 12x^2$

b) $y = 2x^3 + 24x^2 - 5x - 21$

c) $y = x^4 - 2x^3 + x - 2$

d) $y = \dfrac{1}{x-1}$

e) $y = \dfrac{1}{x^2+1}$

f) $y = \dfrac{1-x^2}{x^3}$

2. For the function $y = 4 - 13x - 6x^2 - x^3$,

a) find the intervals of increase or decrease,

b) find the local maximum and minimum values,

c) find the intervals of concavity,

d) find the points of inflection,

e) sketch the curve.