

NAME: \_\_\_\_\_

#1 Over what **interval(s)** is the following function INCREASING/DECREASING  
 $f(x) = -4x^2 + 8x$

(20)

#2 Where, if any, are the **inflexion points** of the following function  
 $f(x) = x^3 - \frac{1}{2}x^4$

(10)

#3 Find the absolute maximum **value** and the absolute minimum **value** of

$$f(x) = x^3 - 9x^2 + 15x + 2$$

on  $[0, 2]$

(20)

#4 Find ALL relative maxima and ALL relative minima of  
 $f(x) = (x^2 - 4)^2$

(20)

#5 Over what **intervals** is the following function concave up and what **intervals** is it concave down (10)  
 $f(x) = 12x^2$

#6 Over what **intervals** is the following function concave up and what **intervals** is it concave down (20)  
 $f(x) = x^4 - 24x^2$