Name:_____ **Quiz 5: Ch 4.1, 4.2**

Draw a box around your final answers. No partial credit will be given.

Find the interval(s) where the function is increasing and the interval(s) where it is decreasing.

1. $f(x) = x^3 - 3x^2$

Increasing: _____

Decreasing: _____

2. $g(x) = x^3 + 3x^2 + 1$

Increasing: _____

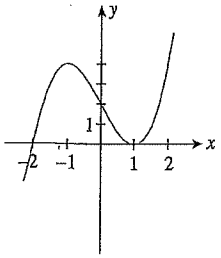
Decreasing: _____

3. $h(x) = x^4 - 4x^3 + 10$

Increasing: _____

Decreasing: _____

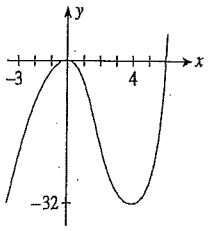
4. Find the interval(s) where the function is increasing and the interval(s) where it is decreasing.



Increasing: _____

Decreasing: _____

5. Determine the relative maxima and relative minima, if any.



Relative minima: _____

Relative maxima: _____

Determine where the graph of the function is concave upward or concave downward.

6. $f(x) = 3x^4 - 6x^3 + x - 8$

Concave upward: _____

Concave downward: _____

7. $f(x) = x^4 - 6x^3 + 2x + 8$

Concave upward: _____

Concave downward: _____

8. $f(x) = 2x^2 - 3x + 4$

Concave upward: _____

Concave downward: _____

Find the inflection point(s), if any of each function.

9. $f(x) = 2x^3 - 3x^2 + 18x - 8$

Inflection point(s): _____

10. $f(x) = 6x^3 - 18x^2 + 12x - 20$

Inflection point(s): _____