Unit 4 WS 3
Calculus 1

Determine the intervals of concavity (concave up/down) for the following functions. Also identify the point(s) of inflection if they exist.

1. $f(x) = 3x^3 - 18x$

2. $f(x) = x^4 - 6x^3 - 24x^2 + 3x + 1$

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

4. $f(x) = -4x^3 + 3x^2 + 6x - 12$

5. $f(x) = 2x^3 - 9x^2 + 12x$

6. $f(x) = \sqrt[3]{x} + 2$

7. $f(x) = \sin x \qquad [0, 2\pi]$

Determine the intervals where the following functions are:

a) increasing/decreasing along with the local maximum(s)/minimum(s).

b) concave up/concave down along with the point(s) of inflection.

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

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

10. $f(x) = \cos x \qquad [0, 2\pi]$