

Name: _____

Curve Sketching

Exercise 1: Let $f(x) = 2x^3 + 3x^2 - 36x + 1$. Find the intervals on which the function is concave up and concave down.

Exercise 2: Let $f(x) = 2x^3 + 3x^2 - 36x + 1$. Find the point(s) of inflection.

Exercise 3: Use first derivative (increasing/decreasing intervals) to graph

a. $f(x) = x^3 - 6x^2$

b. $f(x) = x(x^2 - 9)$

Exercise 4: Let $f(x) = 2x^3 + 3x^2 - 36x + 1$. Find the intervals on which f is increasing or decreasing.

Exercise 5: Let $f(x) = \sqrt[3]{x-2}$. Find:

- 1) Points of inflection.
- 2) Intervals of concavity.

Exercise 6: Sketch the graph

1) $f(x) = x^4 - 2x^3$

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

3) $f(x) = x^4 - 3x^2 - 3$

4) $f(x) = x^4 - 4x^3 + 10$

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

6) $f(x) = x^4 - 8x^2$