Math 241 Worksheet 10 (two-sided)

Name: _____ Section (circle one):   **3**   **4**

1. Find the intervals of increasing/decreasing and intervals of concavity, local extrema and inflection points of the function $f(x) = x^3 - 6x^2$. Then sketch its graph based on this information.

2. Sketch the graph of a function $y = f(x)$ satisfying the following conditions.

- There is a vertical asymptote at $x = -2$.

- $\lim\limits_{x \to \infty} f(x) = 1, \ \lim\limits_{x \to -\infty} f(x) = -\infty.$

- $f'(0) = 0; \ f'(x) > 0$ for $x < -2$ and for $-2 < x < 0; \ f'(x) < 0$ for $x > 0$.

- $f''(1) = 0; \ f''(x) > 0$ for $x < -2$ and for $1 < x; \ f''(x) < 0$ for $-2 < x < 1$.