Quiz 18

Name: _____

1. Determine the intervals where the function $f(x) = 4x^3 - 2x^2 + 5$ is concave up and concave down.

$$f'(x) = 12x^2 - 4x$$
$$f''(x) = 24x - 4$$

Solve $f''(x) = 0$: this gives $x = \frac{1}{6} \approx 0.167$. Then on a number line, you'll find that to the left of $1/6$, f'' is negative, and to the right it is positive. So, f is concave up on the interval $(1/6, \infty)$ and is concave down on the interval $(-\infty, 1/6)$.