Name: Solutions Quiz 9

1. Let $f(x) = 3x^4 - 4x^3 + 1$. Find the intervals of concavity of $f(x)$.

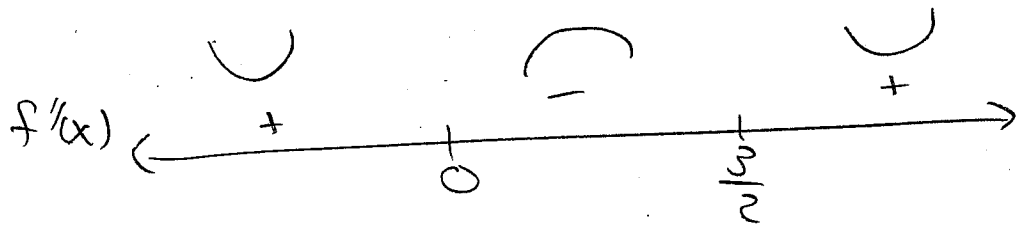
$$f'(x) = 12x^3 - 12x^2$$

$$f''(x) = 12 \cdot 3x^2 - 12 \cdot 2x$$

$$= 12(3x^2 - 2x)$$

$$= 12 \cdot x \cdot (3x - 2) \overset{\text{set}}{=} 0$$

$$\Rightarrow x = 0, \quad x = \frac{2}{3}$$



$f(x)$ is concave up on $(-\infty, 0)$, $(\frac{2}{3}, \infty)$

" " " down " $(0, \frac{2}{3})$