

This is a fake quiz, this is only a fake quiz. In the event of an actual quiz, you'd have been given fair warning. Repeat: This is only a fake quiz.

1. Let $f(x) = x^3 - 9x + 6$.

- (a) Find the largest intervals on which f is increasing. $(-\infty, -\sqrt{3})$ and $(\sqrt{3}, \infty)$
- (b) Find the largest intervals on which f is decreasing. $(-\sqrt{3}, \sqrt{3})$
- (c) Find the largest intervals on which f is concave up. $(0, \infty)$
- (d) Find the largest intervals on which f is concave down. $(-\infty, 0)$
- (e) Find the coordinates of all local maximum points of f . $(-\sqrt{3}, 6\sqrt{3} + 6)$
- (f) Find the coordinates of all local minimum points of f . $(\sqrt{3}, 6 - 6\sqrt{3})$

2. Let $f(x) = \sqrt{x^2 + 3x} - x$.

- (a) Find the largest intervals on which f is increasing. $(0, \infty)$
- (b) Find the largest intervals on which f is decreasing. $(-\infty, -3)$
- (c) Find the largest intervals on which f is concave up. **never!**
- (d) Find the largest intervals on which f is concave down. $(-\infty, -3)$ and $(0, \infty)$
- (e) Find the coordinates of all local maximum points of f . $(-3, 3)$
- (f) Find the coordinates of all local minimum points of f . $(0, 0)$