

Quiz 1

Math 252

Name:

Show *all* your work (algebraically or geometrically) for each and simplify. No credit is given without supporting work.

1. [3] Find the following:

$$\lim_{x \rightarrow 0} (\sin x - 3 \cos x)$$

$$\lim_{x \rightarrow \infty} \frac{1}{x - 4}$$

$$\lim_{x \rightarrow 1} \frac{\ln x}{x - 1}$$

2. [3] Find $\frac{dy}{dx}$ given

$$y = x \sin x$$

$$y = 5x^2 - 3x + 1$$

$$y = e^{3x}$$

3. [2] Define or explain in your own words what conditions a function must satisfy to be continuous. Please use examples and be clear.

4. [2] Define or explain in your own words what the derivative of a function at a point is. Please use examples and be clear.