

Math 131 - Quiz 6

October 5, 2023

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (4 points) Determine each derivative. Do not simplify your answers.

(a) $\frac{d}{dx} [5\sqrt{x} \sec x]$

(b) $\frac{d}{dt} \frac{5t^3 - 8t^2 - 9t}{\cos t}$

2. (2 points) Let $y = x - 3x^4 - \sin x$. Find $\frac{d^2y}{dx^2}$.

3. (4 points) An object is thrown upward in such a way that its height after t seconds is given by $s(t) = -16t^2 + 32t + 128$, where s is measured in feet.

(a) What is the maximum height of the object?

(b) What is the object's velocity when it hits the ground?