Quiz #11, 11/20
Math 156 (Calculus I), Fall 2024

Problem 1 is worth 4 points, and Problem 2 is worth 6 points, for a total of 10 points. Remember to *show your work* on all problems!

1. The velocity (in meters per second) at time t (in seconds) of a car moving along a one-dimensional road is given by the function $v(t)$. Write an expression, in terms of $v(t)$, for the net displacement (in meters) of the car from time $t = 3$ seconds to time $t = 8$ seconds.

2. Evaluate the following indefinite integrals by using the u-substitution technique:

   (a) $\int x \cdot \sin(2x^2 + 5) \, dx$

   (b) $\int x^2 \cdot e^{x^3 - 2} \, dx$

   (c) $\int \sqrt{5x + 2} \, dx$