

Quiz 3

Math 252

Name:

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

1. [2] Evaluate the following *or* explain why your theorems don't apply.

$$\int_0^{\frac{\pi}{4}} \sec^2 t \, dt$$

$$\int_{-2}^1 x^{-4} \, dx$$

2. [2] Find the following *or* explain why your theorems don't apply.

$$\int \frac{1}{x^2} \, dx$$

$$\int e^{5x} \, dx$$

3. [2] If $f(1) = 12$, f' is continuous, and $\int_1^4 f'(x) dx = 17$, what is the value of $f(4)$?

4. A particle moves along a line so that its velocity as time t is $v(t) = t^2 - t - 6$ (measured in meters per second).

(a) [2] Set up but *do not calculate* the definite integral(s) used to find the net displacement of the particle during the time period $1 \leq t \leq 4$.

(b) [2] Set up but *do not calculate* the the definite integrals used to find the total distance traveled during the time period $1 \leq t \leq 4$.