

Name _____

You must show all of your work to receive credit for a correct answer. You are not allowed to borrow another student's calculator during the quiz.

1. (3 points) Evaluate the following definite integral. Your answer must be correct to 3 decimal places.

$$\int_0^3 6e^{-2x} dx$$

2. (7 points) In 1970, a small town had a population of 5000 people. The rate of change of population for this town is increasing and is shown in the table below.

# years since 1970	0	2	4	6	8	10
rate of change (people per year)	20	52	84	116	148	180

- (a) Use a left-hand sum with $n = 5$ rectangles to estimate the total change in the population between 1970 and 1980.
- (b) Use a right-hand sum with $n = 5$ rectangles to estimate the total change in the population between 1970 and 1980.
- (c) Show how to use the two estimates already found in an attempt to get a better approximation for the total change in population between 1970 and 1980.
- (d) Using your estimate in part (c), approximate the population of this town in 1980.