Math 132: Calculus for the Physical & Life Sciences 2  
Spring 2005  
Worksheet 1  
Professor Levandosky

1. Steve is curious to know just how much snow he has shovelled from his driveway so far this winter. So one day he goes out and takes measurements. The driveway is approximately 115 feet long, and the widths (in feet) at 5 foot intervals are as follow: 15, 16, 18, 18, 19, 20, 19, 18, 17, 15, 15, 14, 13, 12, 12, 12, 12, 12, 12, 12, 12, 12, 13, 14, 15, 17, 17.

(a) Use left and right hand sums to obtain approximations for the area of the driveway. Be sure to give units.

(b) Approximately 19 inches of snow has fallen so far this winter. How many cubic feet of snow has Steve shovelled?

2. A graph of the velocity \( v \) of a car in feet/sec at time \( t \) seconds is shown below.

![Graph of velocity vs. time](image)

(a) How far does the car travel?

(b) What is the average velocity of the car?

3. Suppose you know that

\[
\int_{0}^{1} e^{-x^2} \, dx \approx 0.7468 \quad \int_{0}^{2} e^{-x^2} \, dx \approx 0.8821
\]

Compute

(a) \( \int_{1}^{2} e^{-x^2} \, dx \)

(b) \( \int_{-1}^{1} e^{-x^2} \, dx \)

4. Suppose

\[
\int_{1}^{4} f(x) \, dx = 5
\]

Compute

\[
\int_{1}^{4} 2 + 3f(x) \, dx
\]