

Homework 4

Sections 5.1-5.3

Due: Wednesday, June 29

1. Give an example of a velocity function f and an interval $[a, b]$ such that the distance denoted by the right-hand sum for f on $[a, b]$ is less than the distance denoted by the left-hand sum, no matter what the number of subdivisions.
2. Give an example of (either draw a graph or write the equation of the function) a function f such that $\int_1^3 f(x)dx < \int_1^2 f(x)dx$.
3. Draw a picture of two functions $f(x)$ and $g(x)$ to show the following statement is false:

'If $\int_2^6 f(x)dx \leq \int_2^6 g(x)dx$, then $f(x) \leq g(x)$ for $2 \leq x \leq 6$.'

4. Pollution is removed from a lake on day t at a rate of $f(t)$ kg/day.
 - (a) Explain the meaning of the statement $f(12) = 400$
 - (b) If $\int_5^{15} f(t)dt = 4000$, give the units of the 5, 15 and 4000.
 - (c) Give the meaning of $\int_5^{15} f(t)dt = 4000$.