1) For the function $f(x) = -x^2 + 2x + 6$ over the interval [0,3], give a trapezoidal approximation of the area using 6 subintervals.

2) The rate at which customers enter the new Struggletown BBQ location starting at 12 noon is given by the chart below, where $0 < t < 8$ is the time interval, in hours.

Time since 12 Noon (hours)	0	2	3	5	8
Rate of people being served per hour	22	18	17	14	11

a. If Struggletown opens at 11am and there have already been 12 customers served before noon, use a left-hand approximation of 4 subintervals to estimate the number of customers that have been served by 8pm

b. Is this an under-approximation, or over-approximation? Explain

3) Rewrite the following integral in summation notation

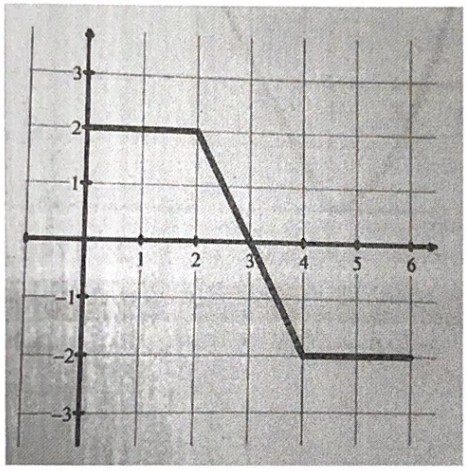
$$\int_{1}^{5} x^3 - x + 1 \, dx$$

4) Rewrite the following summation notation as an integral

$$\lim_{n\to\infty} \sum_{k=1}^{n} (2/n)\ (3 + 2k/n)^2$$

5) Let $f(x) = \int g(t)\,dt$.

a. Complete the chart below



b. Graph f(x) on the same axis above as g(t)

6) Find p'(x) for the following functions:

$$a.\ p(x) = \int_{x}^{3x^2} \tan(t)\,dt$$

$$b.\ p(x) = \int_{-2x}^{4x^3} t^3\,dt$$

7) Workbook Page 258 # 1