

Warm-Up Problems

January 17, 2003

1. Find the following sums (practice with summation Σ notation)

(a)

$$\sum_{i=1}^5 (i^2 + 1)$$

(b)

$$\sum_{j=4}^6 \frac{j}{j+1}$$

(c)

$$\sum_{i=1}^n (i + i^2)$$

2. For the function $f(x) = 1/x$, find an estimate for the area under the curve from $x = 1$ to $x = 3$ in the following ways:

(a) Using a left hand sum and 4 subintervals.

(b) Using a right hand sum and 4 subintervals.

(c) Using a mid-point rule and 4 subintervals.

(d) Determine, if possible, (by looking at the graph) if your above estimates for the area are too large or too small.

3. Using the following time-velocity data, find an estimate for the distance travelled in the time period from $t = 0$ seconds to $t = 6$ seconds.

time (seconds)	0	2	4	6
Velocity (mph)	5.45	8.18	10.23	6.82
Velocity (ft/s)	8	12	15	10