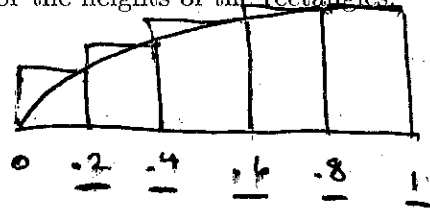


Name: _____

Quiz 18, section 5.1

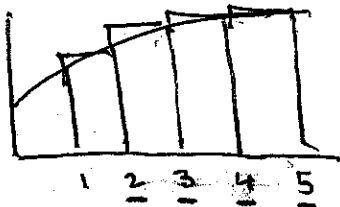
1. (5 pts) Use numerical sums to estimate the area under the curve $f(x) = \sin x$ on the interval $[0, 1]$ using $N = 5$ rectangles; use right endpoints for the heights of the rectangles. Radian mode!

$$h = \frac{1-0}{5} \approx .2$$



$$\begin{aligned}
 A &\approx \sum_{i=1}^5 R_i \\
 &= \sum_{i=1}^5 h f(x_i) \\
 &= h \sum_{i=1}^5 f(x_i) = .2 \left[\sin .2 + \sin .4 + \sin .6 + \sin .8 \right. \\
 &\quad \left. + \sin 1 \right] \\
 &= .5423
 \end{aligned}$$

2. (5 pts) Use numerical sums to estimate the area under the curve $f(x) = \sqrt{x^2 + 3}$ on the interval $[1, 5]$ using $N = 4$ rectangles; use right endpoints for the heights of the rectangles.



$$h = \frac{5-1}{4} = 1$$

$$\begin{aligned}
 A &\approx \sum_{i=1}^4 h f(x_i) = 1 * (f(2) + f(3) + f(4) + f(5)) \\
 &= 15.76
 \end{aligned}$$