Key

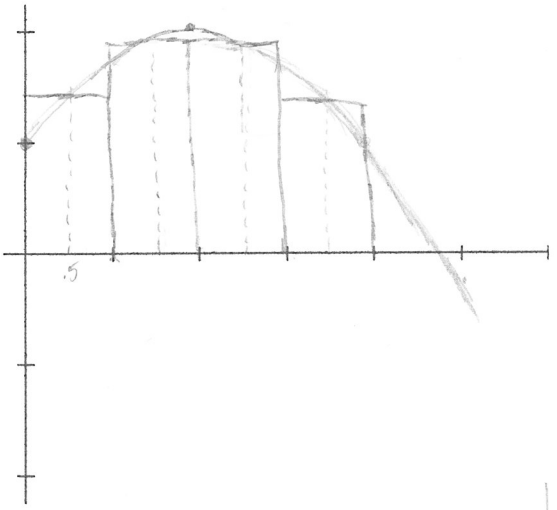
Quiz 5.1 to 5.3 Review

1. The table shows the velocity of a bicyclist riding for 60 seconds. Use right endpoint values (RRAM) to estimate the distance using 6 intervals of length 10. **(By hand, not using your program)**

Time (sec)	0	10	20	30	40	50	60
Velocity (ft/sec)	0	15	20	22	24	28	22

$10(15+20+22+24+28+22)$
$10(131) =$ **1310 ft**

2. **Sketch the region R** enclosed between the graph of $y = -\frac{1}{4}x^2 + x + 1$ and the x-axis for $0 \le x \le 4$. Partition [0, 4] into 4 subintervals and **show the four rectangles** that MRAM uses to approximate the area of R.



x_i	$f(x_i)$
.5	1.4375
1.5	1.9375
2.5	1.9375
3.5	1.4375

$1(1.4375+1.9375+1.9375+1.4375) =$ **6.75**

3. Find MRAM for the region described in question 2. **(By hand, not using your program)**

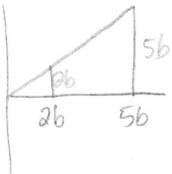
4. Write the definite integral for $\lim_{\|P\|\to 0} \sum_{k=1}^{n} (c_k^2 + 8c_k)\Delta x$, where P is any partition of [1, 5]? $\int_1^5 (x^2+8x)\,dx$

5. Use the graph of the integrand and areas to evaluate $\int_0^8 \sqrt{64 - x^2}\,dx$ $\frac{1}{4}\pi \cdot 8^2 =$ **16π**

6. Review Lesson 5.3 #1-6. Make sure you know the Rules for definite integrals (p.269).

7. Find the average value of the function $y = -3x^2 - 1$ on the interval [2, 4]. $\frac{1}{2}(-x^3 - x)\Big|_2^4 = \frac{1}{2}(-68-(-10))$
$= \frac{1}{2}(-58) =$ **-29**

8. Use the graph of the integrand and areas to evaluate $\int_{2b}^{5b} x\,dx$



$\frac{1}{2}(5b+2b)(3b)$
$\frac{1}{2}(7b)(3b) =$ **$\frac{21}{2}b^2$**

9. Evaluate $\int_0^{\frac{3\pi}{2}} 2\cos x\,dx$ by finding the antiderivative.

$2\sin x\Big|_0^{3\pi/2}$ $2(-1-0) =$ **-2**