MATH 140: Quiz 5

Name: Ans Key

#1. (8 points) Approximate $\int_0^{10} f(x)dx$ given the following data:

x	0	2	4	6	8	10
$f(x)$	1	7	2	8	3	9

$LHS = 1\cdot 2 + 7\cdot 2 + 2\cdot 2 + 8\cdot 2 + 3\cdot 2 = 42$

$RHS = 7\cdot 2 + 2\cdot 2 + 8\cdot 2 + 3\cdot 2 + 9\cdot 2 = 58$

$\int_0^{10} f(x)dx \approx Average = \frac{42+58}{2} = 50$

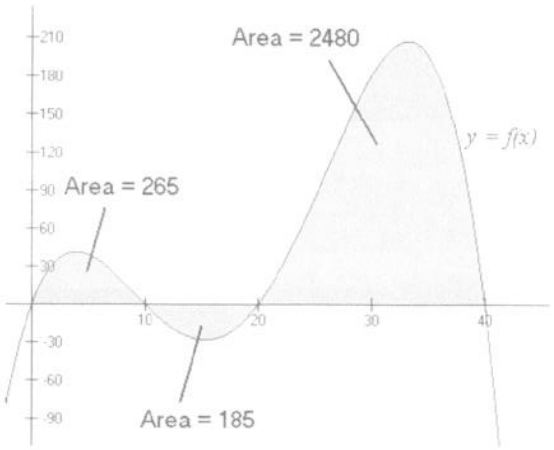
#2. (7 points) Google obtains advertisement revenue at a rate given by

$$R(s) = \frac{100000 + 1540t - t^2}{1000 + t} \text{ (dollars/minute)}$$

where t is the number of minutes past midnight. Find the total revenue obtained between 9AM and 5PM. *(Hint: 9AM is 540 minutes past midnight, and 5PM is 1020 minutes past midnight.)* If you use your calculator, make sure you still explain what you had it compute.

$$\int_{540}^{1020} \frac{100000 + 1540t - t^2}{1000 + t}\, dt = \$182791.17$$

#3. (5 points) Given the following graphical information, determine $\int_0^{40} f(t)dt$.



$$\int_0^{40} f(t)dt = 265 - 185 + 2480$$
$$= 2560$$