AP Calculus AB - Unit 6 Outline – Area and Average Value

Tuesday 11/5	**Today's Topic: Evaluating Riemann Sums**

Warm-Up: Evaluate $\sum_{k=1}^{4}\left[\left(1+\frac{1}{2}k\right)^2\cdot\frac{1}{2}\right]$

In-Class Examples: Handout

AP Multiple Choice

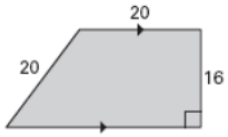
Let f be the function given by $f(x) = 9^x$. If four subintervals of equal length are used, what is the value of the right Riemann sum approximation on the interval $[0,2]$?

(A) 20 (B) 40 (C) 60 (D) 80 (E) 120

Homework: Worksheet 51

Wednesday 11/6	**Today's Topic: Approximating Area using Riemann Sums**

Warm-Up: Find the area of the trapezoid:



In-Class Examples: 1) Approximate the area under the curve $f(x)=\sin x$ on $[0,\pi]$ using a Trapezoidal Approximation with 4 subintervals of equal width. Is this approximation an underestimate or an overestimate of the actual area?

Homework: Worksheet 52

Thursday 11/7	**Today's Topic: Approximating Area using Riemann Sums – Table Problems**

In-Class Examples: Notes Handout

AP Multiple Choice

x	0	25	30	50
$f(x)$	4	6	8	12

The values of a continuous function f for selected values of x are given in the table above. What is the value of the left Riemann sum approximation using three subintervals? ?

(A) 290 (B) 360 (C) 380 (D) 390 (E) 430

Homework: Worksheet 53

Tuesday 11/12	**Today's Topic: Exact Area Under a Curve**
In-Class Examples: Handout	
Homework: Worksheet 54	

Wednesday 11/13	**Today's Topic: Area Between two curves about the *x*-axis ("top minus bottom")**
In-Class Examples: Notes Handout	
AP Multiple Choice What is the area of the region enclosed by the graphs of $f(x) = x - 2x^2$ and $g(x) = -5x$? (A) $\frac{7}{3}$ (B) $\frac{16}{3}$ (C) $\frac{20}{3}$ (D) 9 (E) 36	
Homework: Worksheet 55	

Thursday 11/14	**Today's Topic: Area Between two curves about the *y*-axis ("right minus left")**
In-Class Examples: Notes Handout	
Homework: Worksheet 56	

Friday 11/15	**Today's Topic: Average "Y" Value and Review**
In-Class Examples: Ex. 1 Find the average value of $f(x) = 4 - x^2$ on $[0,3]$. Ex. 2 Find the average value of $f(x) = x^2 - 1$ on $\left[0,\sqrt{3}\right]$.	
AP Multiple Choice Let f be the function defined by $f(x) = \frac{1}{x}$. What is the average value of f on the interval $[4, 6]$? (A) $-\frac{1}{24}$ (B) $\frac{5}{24}$ (C) $\frac{1}{2}\ln\frac{3}{2}$ (D) $\ln\frac{3}{2}$ (E) $\frac{1}{2}\ln 2$	
Homework: Worksheet 57 and Worksheet 58	

Monday 11/18	**Today's Topic: Review for Test**
In-Class Examples: Riemann Sums, Exact Areas, Average "Y" Value	
Homework: Review	

Tuesday 11/19	**Today's Topic:** Riemann Sums, Areas, Average "Y" Value Test
In-Class Examples: Riemann Sums, Areas, Average "Y" Value	
Homework: None	