MATH 1850 Sec 001

SINGLE VARIABLE CALCULUS I

QUIZ 9

April 11, 2013

Name (Last, First) Key

1. Use finite approximation to estimate the area under the graph $f(x) = 2x^2$ and above the x-axis from $x_0 = 0$ to $x_n = 12$ using

   (a) a lower sum with 4 rectangles of equal width.

$\Delta x = \frac{12-0}{4} = 3$

$A_1 = 2 \cdot 0^2 \cdot 3 = 0$

$A_2 = 2 \cdot 3^2 \cdot 3 = 54$

$A_3 = 2 \cdot 6^2 \cdot 3 = 216$

$A_4 = 2 \cdot 9^2 \cdot 3 = 486$

756

2. Do the previous problem by taking an upper sum with 6 rectangles of equal width.

$\Delta x = \frac{12-0}{6} = 2$

$A_1 = 2 \cdot 2^2 \cdot 2 = 16$

$A_2 = 2 \cdot 4^2 \cdot 2 = 64$

$A_3 = 2 \cdot 6^2 \cdot 2 = 144$

$A_4 = 2 \cdot 8^2 \cdot 2 = 256$

$A_5 = 2 \cdot 10^2 \cdot 2 = 400$

$A_6 = 2 \cdot 12^2 \cdot 2 = 576$

1456