Math 171 - Quiz 10

November 20, 2014

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (5 points) Use 4 subintervals of equal length and subinterval midpoints to compute a Riemann sum for $g(x) = x^2 + x$ on the interval $[0, 2]$.

$\Delta x = \frac{2-0}{4} = \frac{1}{2}$

PARTITION : $0 < 0.5 < 1 < 1.5 < 2$

c_k's : $0.25,\ 0.75,\ 1.25,\ 1.75$

RIEMANN SUM = $0.5\left[g(0.25) + g(0.75) + g(1.25) + g(1.75) \right]$

$= \boxed{4.625}$

2. (5 points) Let $f(x) = \frac{1}{x}$. Use 5 subintervals of equal length to compute a Riemann sum for f over the interval $[1, 2]$.

$\Delta x = \frac{2-1}{5} = \frac{1}{5}$

PARTITION : $1 = \frac{5}{5} < \frac{6}{5} < \frac{7}{5} < \frac{8}{5} < \frac{9}{5} < \frac{10}{5} = 2$

c_k's : $\frac{11}{10},\ \frac{13}{10},\ \frac{15}{10},\ \frac{17}{10},\ \frac{19}{10}$

RIEMANN SUM = $\frac{1}{5}\left[\frac{10}{11} + \frac{10}{13} + \frac{10}{15} + \frac{10}{17} + \frac{10}{19} \right]$

$= \boxed{\frac{479378}{692835} \approx 0.6919}$