Calculus and Analytic Geometry I
Quiz 5.1
Due Wednesday

Name_____

Show all work necessary for your answers.

1. Let $f(x) = 4 - x$, on $[0, 4]$, a line with y-intercept $(0, 4)$ and x–intercept $(4, 0)$ Use R_4 (with right hand endpoints) to estimate the area between the curve $y = f(x)$ and the x–axis on the interval $[0, 4]$.

2a. Let $f(x) = 4 - x$, on $[0, 4]$, a line with y-intercept $(0, 4)$ and x–intercept $(4, 0)$. Find a general formula for R_n

2b. Find the area between the curve $y = f(x)$ and the x–axis on the interval $[-2, 2]$ by taking $\lim_{n\to\infty} R_n$.

Hint: You'll need $\sum_{k=1}^{n} 1 = n$ and $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$

3. Find the most general antiderivative of f, call it F, and then compute $F(4) - F(0)$ to get the exact value for this area. We'll find out soon why this is the exact area. Also find the area of the region by considering it to be a triangle.