Math 2320 - Quiz 1

Name:____

1. Compute the foillowing without a calculator:
   - $\cos(\pi/2)$
   - $\sec(\pi/3)$
   - $\sin(11\pi/3)$
   - $\tan(14\pi/6)$
   - $\csc(-\pi/6)$
   - $\cos^{-1}(1)$ all answers $0 \leq \theta \leq 2\pi$.
   - $\sec^{-1}(2)$ all answers $0 \leq \theta \leq 2\pi$.
   - $\sin^{-1}(\frac{-\sqrt{3}}{2})$ all answers $0 \leq \theta \leq 2\pi$.

2. Evalute the Riemman sum for f on the given interval for the given value for n and x_k. Sketch the function and the rectangles (label your graph).
   $f(x) = 1/x$, $[a, b] = [1, 3]$, $n = 5$, $\bar{x_1} = 1.1$, $\bar{x_2} = 1.5$, $\bar{x_3} = 2$, $\bar{x_4} = 2.3$ and $\bar{x_5} = 3$. Use regularly spaced intervals so $x_0 = 1$, $x_2 = 1.4$, etc. And use the formula
   $$\text{AREA} \approx \sum_{k=1}^{5} f(\bar{x_k})\Delta_k.$$

3. Use the right hand rule to approximate the following with $n = 4$.
   $$\int_1^3 x^2 + 1$$

4. Use a formula to compute the following
   - $\sum_{k=1}^{100} k + 1$
   - $\sum_{k=1}^{200} k(3k + 1) - 2k$

5. Use the right hand rule to compute the area exactly for
   $$\int_1^4 3x - 2.$$

Use the formulas

$$\Delta x = \frac{b-a}{n} \text{ and } x_k = a + k\Delta x$$

$$\int_1^4 3x - 2 = \lim_{n\to\infty} \sum_{k=1}^{n} f(x_k)\Delta_k$$