# QUIZ 4

1. (3 points) Rewrite the following limit on $[1,4]$ as a definite integral:

$$\lim_{n\to\infty}\sum_{i=1}^{n}[x_i \tan 3x_i]\Delta x$$

$$= \int_{1}^{4} \boldsymbol{x\tan(3x)\,dx}$$

2. (3 points) Consider $\int_0^2 (6x-1)\,dx$. Suppose that you want to compute this definite integral using the definition (ie: finding the limit of the Riemann sum). Find $\Delta x$ and $x_i$ for this definite integral.

$$\boldsymbol{\Delta x = \frac{b-a}{n} = \frac{2-0}{n} = \frac{2}{n}}$$

$$\boldsymbol{x_i = a + i\Delta x = 0 + i\cdot\frac{2}{n} = \frac{2i}{n}}$$

3. (4 points) Compute $\int_0^2 (6x-1)\,dx$.

$$\boldsymbol{= 3x^2 - x\Big|_0^2 = (12-2)-(0) = 10}$$

Or you can use Riemann Sums or draw a picture and compute the area of the triangles. The above way of using antiderivatives is the quickest.