MAT 126-Exam 1-Spring 2018

NAME:_____

TA NAME:_____

*Each numbered question is worth 20 points.

1. For all parts in question #1 $f'(x) = \sqrt{9 - x^2}$

a.) Sketch a graph of f'.

b) Write an expression in sigma notation that represents the area under f' from $x = 0$ to $x = 3$.

c) Find the exact value of the area under f' from $x = 0$ to $x = 3$.

d) Sketch a graph of f if $f(0) = 5$.

2. Draw $y = F(x) = \int_1^x (-1 + |t + 2|)dt$ with correct concavity on a scaled set of axes. (Include at least 3 labeled points.)

3. Use a left Riemann estimate with 2 subintervals to approximate the area between $\frac{dy}{dx} = \sqrt{x^3 + 1}$ and the x axis from $x = -1$ to $x = 5$. Now use this value to sketch $y = f(x)$ if $f(-1) = 2$

4) Compute the following for $f(x) = \sin x + 2x$

$$a) \int_0^{2\pi} f(x)dx$$

$$b) \int_{2\pi}^0 f(x)dx$$

$$c) \lim_{n\to\infty} \frac{4\pi}{n} \sum_{i=1}^n f(x_i)$$

5.Using a right Riemann sum, compute the following using limits:

$$\int_1^3 x^2 dx$$