

LAST NAME:

FIRST NAME:

MATH 009C - Summer 2018

Worksheet 1: June 26, 2018

1. Compute the following limit:

$$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$$

2. Compute the following limit:

$$\lim_{n \rightarrow \infty} n^{\frac{1}{1 + \ln(n)}}$$

Please, show all work.

3. Determine if the integral is convergent or divergent:

$$\int_1^{\infty} \frac{1}{\sqrt{x^6 + 1}} dx$$

Please, show all work.

4. Eliminate the parameter for the following parameterized curve. Sketch the curve and use arrows to denote the direction.

$$x = 1 + 4 \sin(t), \quad y = 4 \cos(t), \quad 0 < t < 2\pi$$

Please, show all work.