

MATH UN1101
CALCULUS I (SECTION 5) - SPRING 2019

HOMEWORK 9 (DUE APR 04)

Each part (labeled by letters) of every question is worth 2 points. There are 5 parts, for a total of 10 points. You are encouraged to discuss the homework with other students but you must write your solutions individually, in your own words.

(1) Evaluate the following limits.

(a)

$$\lim_{x \rightarrow 0} \frac{x - \sin x}{x - \tan x}$$

(b)

$$\lim_{t \rightarrow 1} \frac{\ln t}{t - e^t}$$

(c)

$$\lim_{x \rightarrow \infty} x^{1/4} \ln x$$

(d)

$$\lim_{x \rightarrow \infty} x^{1/x}$$

(2) The sum of two positive numbers is 12. What is the smallest possible value of the sum of their squares?