MAT 21A, Fall 2021
Homework 7

Due before 2:10 on Wednesday, November 24

Please write the homework solutions in connected sentences and explain your work. Mark the answers to each question. Scan or take pictures of your homework and upload it to Gradescope before due time.

Find the limits using L'Hôpital's Rule:

1. $\lim_{x\to 1} \frac{\ln(x)}{x-1}$

2. $\lim_{x\to 0} \frac{e^x+e^{-x}-2}{x^2}$

3. $\lim_{x\to+\infty} \frac{e^{0.1x}}{x\sqrt{x}}$

4. For the function $f(x) = e^{-x^2}$:

(a) Find the domain, vertical and horizontal asymptotes

(b) Find the intervals where the function is increasing or decreasing

(c) Find the intervals wher the function is concave up or down

(d) Graph the function using this information