0.0.1 Question 1 (5 pts): Getting to know you

We'd like to learn about your math background. Answer both of the questions in the single cell provided below. (Please do not add any additional cells for your answer).

a). How do you learn math best?

b). What was the last math class you took? Where and when did you take it and how did it go?

After you have typed your answer in the cell run the cell (hold down shift + return).

a) I learn math best by seeing examples and then trying it out on my own with similar problems. For me, the only way to learn something is to do it on my own multiple times until I master it.

b) The last math class I took was discrete math and I got an A. I took it at Austin Community College the semester before I started at this program, so about 2 years ago.

0.0.2 Question 11 (5 pts)

Exponential functions and their derivatives will be used in this class when we discuss probability distributions.

To brush up on Calculus, evaluate the following derivative by hand:

$$\frac{d}{dx}\left(e^{x/4}\right)$$

Type your answer in the cell below using Markdown and LaTeX

You need to use the chain rule to solve

$$\frac{d}{dx}\left(e^{x/4}\right)$$

The chain rule is:

$$\frac{d}{dx}f(g(x)) = f'(g(x)) \cdot g'(x)$$

Apply the chain rule where

$$u = \frac{x}{4}$$

and replace

$$\frac{x}{4}$$

with

$$u$$

in the equation and then apply the chain rule.

Now you get:

$$(\frac{d}{du}(e^u))\frac{d}{dx}u = (e^u)\frac{d}{dx}u$$

Now with substitution:

$$e^{x/4} * \frac{d}{dx}\frac{x}{4} = \frac{e^{x/4}}{4} * \frac{d}{dx}x = \frac{e^{x/4}}{4} * 1$$

Thus, the solution is:

$$\frac{e^{x/4}}{4}$$

3