

[ML20] Assignment 1

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Due: Jan 31 (before class)

[1] Please expand this polynomial $(x - 1)^2 = x^2 - 2x + 1$.

[2] Please simplify the following fraction.

$$\begin{aligned} f(x_1, x_2) &= \frac{x_1^2 - 2x_1x_2 + x_2^2}{x_1^2 - x_2^2} \\ &= \frac{x_1 - x_2}{x_1 + x_2} \end{aligned} \tag{1}$$

[3] Please compare the following two probabilities using \leq or \geq .

$$\Pr\{z \in \{0, 1\}\} \geq \Pr\{z \in \{0, 1, 2\}\} \tag{2}$$

[4] Please refer the the formula of task [3] as formula (2).

[5] Please show a screenshot of your installed Python in Figure 1.

A terminal window with a dark background and light green text. The text shows a user named 'dradose1' at a machine named 'marty-c132' in the directory '~/Documents/cosc5555'. The user runs 'which python3', which returns '/usr/bin/python3'. Then, the user runs 'cat test.py', which shows a file containing 'print("Python is installed")'. Finally, the user runs 'python3 test.py', which outputs 'Python is installed'.

Fig. 1. Screenshot of Python

[6] Please fill the following table with random numbers.

Table 1. Example Table

Hyper-Parameter λ	1e0	1e1	1e2
Training Error	1	2	3
Testing Error	4	5	6