Mathematics for Machine Learning
Problem Set 0
COMS 4774: Summer 2025

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Problem 1

I have looked through the course resources.

Problem 2

(a) I can write inline math equations: $\sum_{k=1}^{n} k = \frac{n(n+1)}{2}$.

(b) I can also write display math equations:

$$\frac{1}{\sqrt{2\pi}} \int_{-\infty}^{\infty} e^{-x^2/2} dx = 1.$$

(c) Let $\mathbf{x}_1, ..., \mathbf{x}_d \in \mathbb{R}^n$ be a list of vectors. We can write a linear combination $\mathbf{y} \in \mathbb{R}^n$ of these vectors as:

$$\mathbf{y} = \sum_{i=1}^{d} w_i \mathbf{x}_i.$$

(d) I'm excited to learn some math for machine learning!

Problem 3

I've filled out the pre-course survey and sent Sam an email.