Machine Learning Assignment 70

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Problem 2

$$1 = \sum_{k=68}^{\infty} c\frac{1}{k^4}$$

$$\frac{1}{c} = \sum_{k=68}^{\infty} \frac{1}{k^4}$$

c $\approx$ 922742

$$P(k \mid \{52, 30, 68, 7\}) = \begin{cases} \dfrac{922742}{k^4} & \text{for } k \geq 68 \\ 0 & \text{otherwise} \end{cases}$$

$$0.95 = \sum_{k=68}^{N} \frac{922742}{k^4}$$

N $\approx$ 183

Problem 3

(a)

$$\frac{1}{6} * \frac{1}{6} = \frac{1}{36}$$

(b)

$$\frac{5}{100} * \frac{95}{99} * \frac{94}{98} = \frac{44650}{970200}$$

(c)

$$\frac{1}{1 + 0.001} \frac{50}{100} \approx 0.4995\%$$