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Assignment 5

CS 355

Pg. 184

Problem 1:

The random variable y = g(x) is discrete and its PMF is given by:

py(1) = P(x less than or equal to ⅓) which is equal to ⅓.

py(2) = 1 - P(1) = 1 - ⅓ = ⅔ .

According to this, the PMF can be calculated by:

(⅓ \* 1) + (⅔ \* 2) = 4/3 + ⅓ = 5/3

Using the expected value rule, the same answer is given:

Expected value =∫g(x)fx(x) dx

= (⅓ to 0) ∫ 1dx + (⅓ to 1)∫ 2 dx

= ⅓ + (2 \* -⅔)

= ⅓ + (6-2 / 3)

= ⅓ + 4/3

= 5/3