

# A1110 Assignment 9

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Papoullis Text Book

May 26, 2022

# Outline

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# Question

**Example 5-17:** If  $x$  takes the values 1, 2, ... 6 with probability  $1/6$ , then find  $E(x)$ .

# Solution

For discrete random variables,

$$E(x) = \sum_i p_i x_i \quad (1)$$

Given,

$$p_i = P(X = x_i) = \frac{1}{6} \quad (2)$$

where  $x_i \in \{0, 1, 2, 3, 4, 5, 6\}$  Therefore,

$$E(x) = \frac{1}{6} \sum_i x_i \quad (3)$$

$$= \frac{1}{6} (1 + 2 + 3 + 4 + 5 + 6) \quad (4)$$

$$= \frac{21}{6} \quad (5)$$

$$= \frac{7}{2} = \boxed{3.50} \quad (6)$$