

Test No.1. -Example

Task 1. Probability distribution of accidents at work during one day is shown in the table.

- Find the expectation of X .
- Find $P(1 < X \leq 3)$.

x	0	1	2	3	4	5
p	0.02	0.18	0.28	0.25	0.2	0.07

Task 2. Two fair coins are tossed. Let x be the number of tails. Find $P(X < 2)$.

Task 3. The continuous random variable X has p.d.f. $f(x)$ where

$$f(x) = \begin{cases} 0 & \text{for } x \leq 10 \\ \frac{1}{150}x & \text{for } 10 < x \leq 20 \\ 0 & \text{for } x > 20 \end{cases}$$

- Find c.d.f.
- Find $P(8 \leq X < 15)$.
- Find the Variance.

Task 4. Thirty six random observations are taken from the following distribution and the sample mean calculated. Find the probability that the sample mean exceeds 5,5, when X is distributed uniformly throughout the range $2 \leq x \leq 7$.

Task 5. An investor (who holds on the stock exchange shares of 6 companies) participates in the trading game. The probability of an increase in the share prices (bull) on the next trading session is equal to the probability of a decrease in the share prices (bear). The number of increases is a random variable.

- Find the expected value.
- Find the probability of increase in prices of at least three companies.