

Answer on Question #43779-Math-Statistics and Probability

The number of students who seek assistance with their statistics assignments is Poisson distributed with a mean of two per day.

- a. What is the probability that no students seek assistance tomorrow?
- b. Find the probability that 10 students seek assistance in a week.

Solution

a. Assuming that tomorrow can be considered as a randomly chosen day, then the probability that no students seek assistance tomorrow is

$$P(X = 0) = \frac{e^{-2}2^0}{0!} = e^{-2} = 0.1353.$$

b. The number of students seeking assistance per day is 2. Therefore, the number of students seeking assistance per week is $7 \cdot 2 = 14$.

This changes the mean of the distribution to 14.

The probability that 10 students seek assistance in a week is

$$P(X = 10) = \frac{e^{-14}(14)^{10}}{10!} = 0.06628.$$

Answer: a. 0.1353; b. 0.06628.