

Answer on Question #78878 – Math – Statistics and Probability

Question

If 3% of the fruits brought into the market are over ripe, find the probability that 5 are over ripe in a sample of 100 fruits.

Solution

Since $p = 0.03$ is small and $\lambda = np = 100 \cdot 0.03 = 3 < 10$ then we use the Poisson's formula:

$$P(X = k) = \frac{\lambda^k}{k!} e^{-\lambda}$$

So,

$$P(X = 5) = \frac{3^5}{5!} e^{-3} \approx 0.014$$

Answer: 0.014.