Answer on Question #51085 – Math – Statistics and Probability

The records show that 8% of the items produced by a machine do not meet the specifications. You take a sample of 100 units.

a. Find the expected value.

b. Find the standard deviation.

Solution

Items X follow binomial distribution with $p = 0.08$ and $n = 100$.

a. The expected value of the items, that do not meet the specifications, is

$E(X) = np = 100 \cdot 0.08 = 8$ items

b. The standard deviation is $sd(X) = \sqrt{Var(X)} = \sqrt{npq} = \sqrt{100 \cdot 0.08 \cdot (1 - 0.08)} = 2.71$