A company sells smartphones, and the number of defects per batch follows a Poisson distribution with a mean of 2 defects. What is the probability of having exactly 3 defects in a randomly selected batch?

Data:

Mean number of defects (λ) =2,

Number of defects (x) = 3

Explanation:

The problem involves a discrete distribution (Poisson) because we are dealing with the count of defects in a batch of smartphones. The Poisson distribution models the probability of a given number of events occurring with in a fixed interval of time or space.

**Probability of exactly 3 defects**

For a Poisson distribution

,

where

* λ =2 (average defects per batch)
* x=3 (the number of defects we are interested in)

**Plug the values into the formula**

.

**Calculate each part**

* **= 8**
* **3! = 3×2×1=6**

Combine

**Final Answer:** The probability is **~ 18.04%**