Normal Distribution, the NORM.DIST function

Example

A bread producing company produces whole wheat loaves of bread in its factory.

It observes that on average every day 85 loaves of bread get discarded on account of being defective.

The standard deviation of number of defectives is 9 loaves.

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Example

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It observes that on average every day 85 loaves of bread get discarded on account of being defective.

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What is the probability that the number of defective loaves produced is between 75 and 80?

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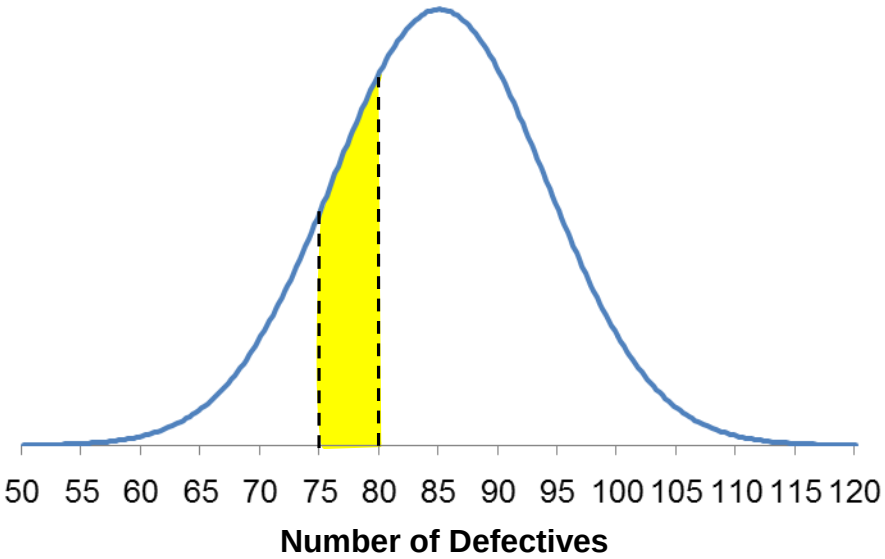
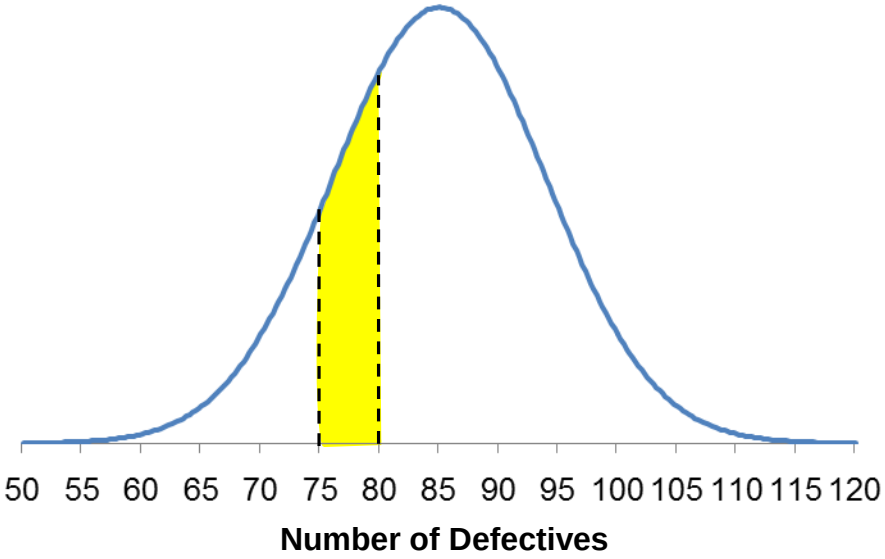


Normal Distribution, the NORM.DIST function

What is the probability that the number of defective loaves produced is between 75 and 80?

Prob(75<Defective<80) = NORM.DIST(80,85,9,TRUE) - NORM.DIST(75,85,9,TRUE)



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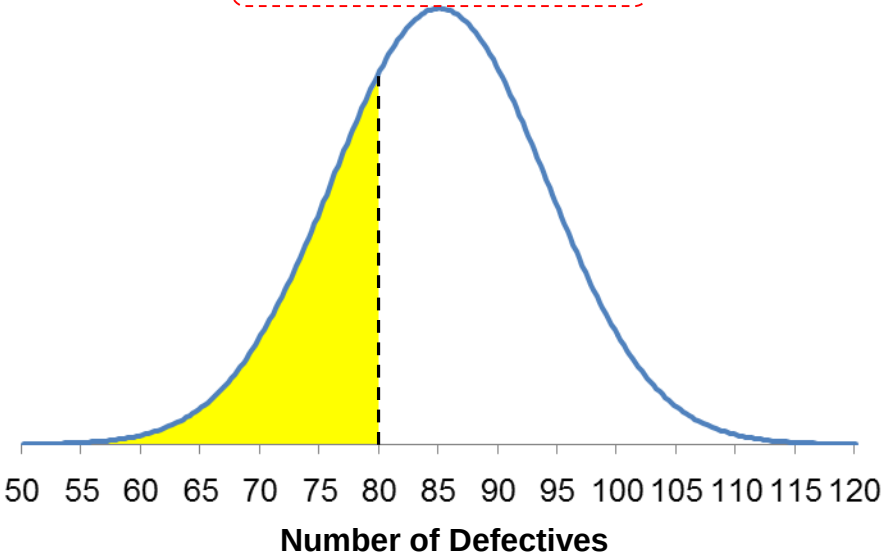

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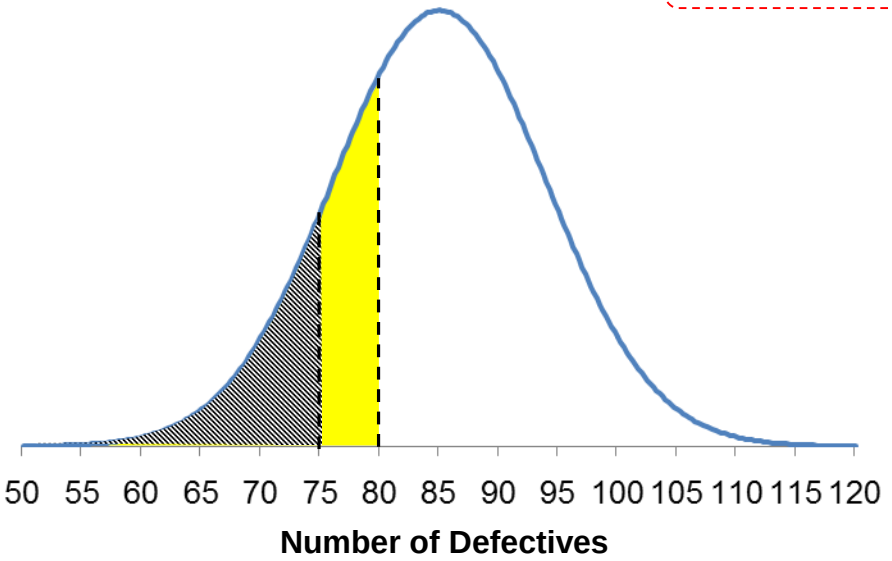

Normal Distribution, the NORM.DIST function

Prob(Defective < 75) = ?

Prob(Defective ≤ 75) = ?

Normal Distribution, the NORM.DIST function

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Prob(Defective ≤ 75) = ?

less than 75

Normal Distribution, the NORM.DIST function

Prob(Defective < 75) = ? **less than 75**

Prob(Defective ≤ 75) = ? **less than or equal to 75**

Normal Distribution, the NORM.DIST function

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less than 75: 74, 73, 72, …

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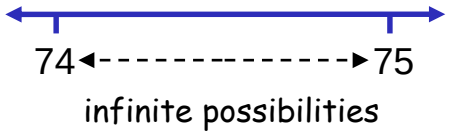

Normal Distribution, the NORM.DIST function

Prob(Defective < 75) = ?

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Normal Distribution, the NORM.DIST function

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Prob(Defective ≤ 75) = ?

The two probabilities are the same

…because Prob(Defective = 75) = 0

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Prob(Defective ≤ 75) = ?

The two probabilities are the same

…because Prob(Defective = 75) = 0

Prob(Defective ≤ 75) = Prob(Defective < 75)

= NORM.DIST(75, 85, 9, TRUE)

Normal Distribution, the NORM.DIST function

NORM.DIST(x, mean, std, **TRUE**)

Normal Distribution, the NORM.DIST function

NORM.DIST(x, mean, std, **TRUE**)

Normal Distribution, the NORM.DIST function

NORM.DIST(x, mean, std, **TRUE**)

NORM.DIST(x, mean, std, **FALSE**)

Normal Distribution, the NORM.DIST function

NORM.DIST(x, mean, std, **TRUE**)

NORM.DIST(x, mean, std, **FALSE**) = **Value of the p.d.f. evaluated at the value "x"**

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≠ **Probability for the random variable**

Normal Distribution, the NORM.DIST function

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≠ **Probability for the random variable**

We will **never** use the NORM.DIST function with the "FALSE" option