How do you calculate normal distribution probabilities in Excel?

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Normal distribution probabilities can be calculated in Excel by using the NORM.DIST function. This function takes in four arguments: the value for which the probability is to be calculated, the mean, the standard deviation, and the cumulative value (either TRUE or FALSE). By inputting these values, Excel will return the probability of the given value occurring in a normal distribution. This allows for easy and accurate calculation of probabilities in a normal distribution, making it a useful tool for statistical analysis and decision making.

Calculate Normal Distribution Probabilities in Excel

A is the most commonly used distribution in all of statistics.

To calculate probabilities related to the normal distribution in Excel, you can use the function, which uses the following basic syntax:

=NORMDIST(x, mean, standard_dev, cumulative)

where:

x: The value of interest in the normal distributionmean: The mean of the normal distributionstandard_dev: The standard deviation of the normal distributioncumulative: Whether to calculate cumulative probabilities (this is usually TRUE)

The following examples show how to use this function to calculate probabilities related to the normal

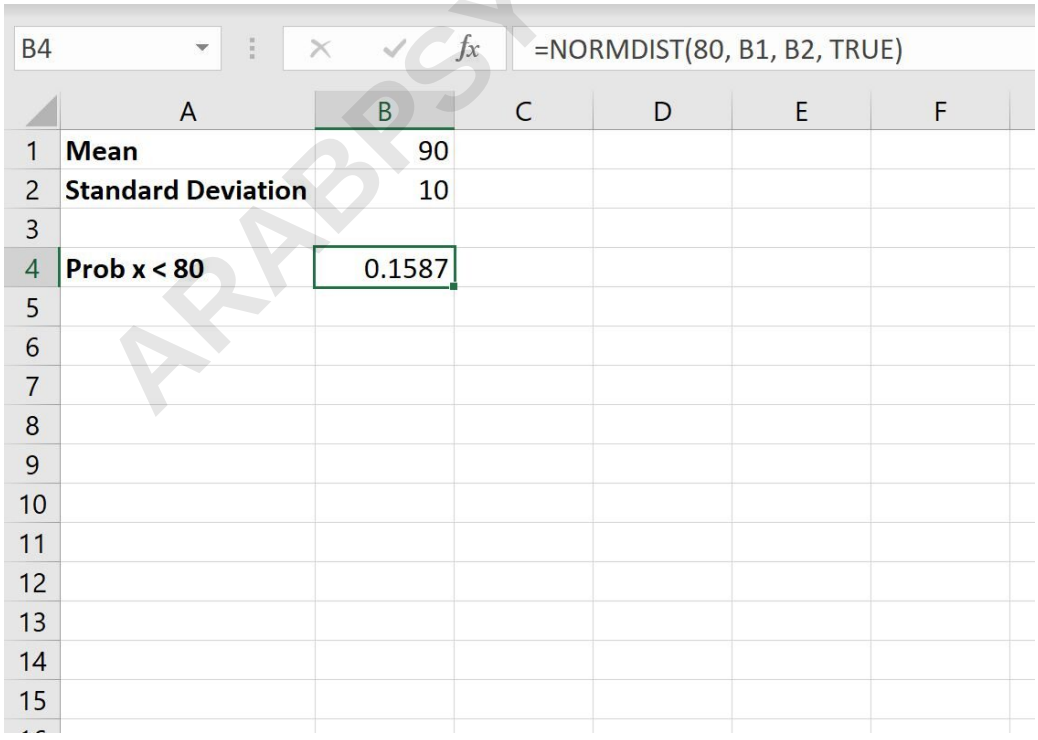
distribution.

Example 1: Calculate Probability Less than Some Value

Suppose the scores for an exam are normally distributed with a mean of 90 and a standard deviation of 10.

Find the probability that a randomly selected student receives a score less than 80.

The following screenshot shows how to use the NORMDIST() function in Excel to calculate this probability:



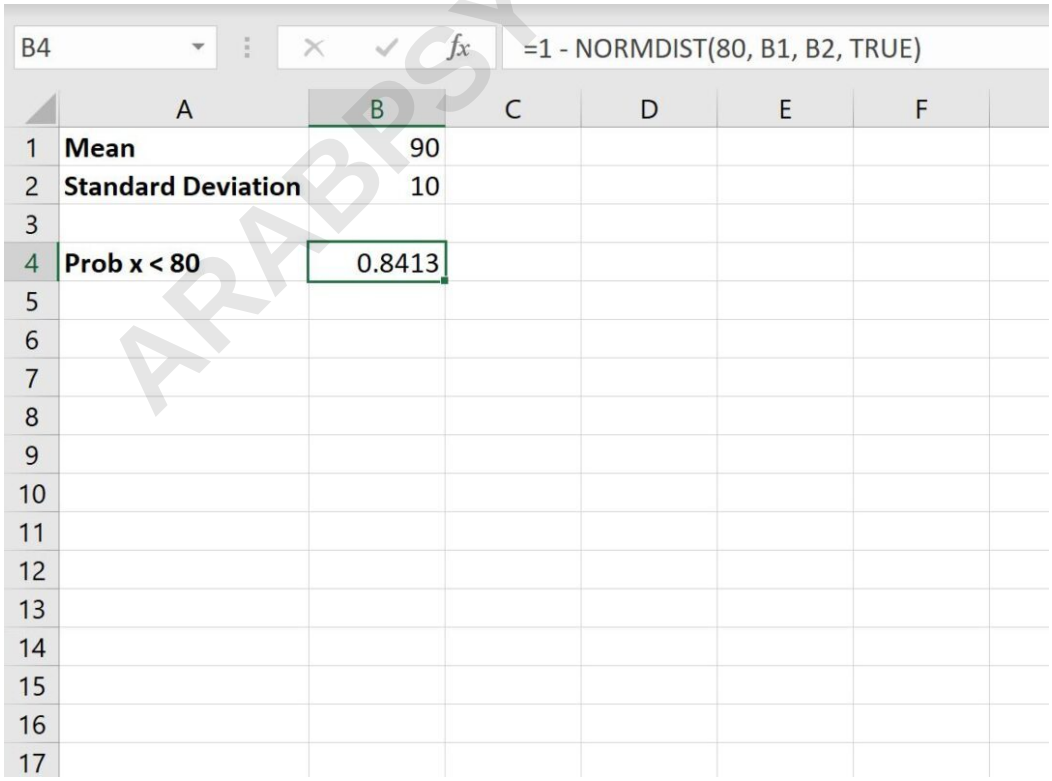
The probability that a randomly selected student receives a score less than 80 is 0.1587.

Example 2: Calculate Probability Greater than Some Value

Suppose the scores for an exam are normally distributed with a mean of 90 and a standard deviation of 10.

Find the probability that a randomly selected student receives a score *greater* than 80.

To find this probability, we can simply do 1 - NORMDIST() in Excel as follows:

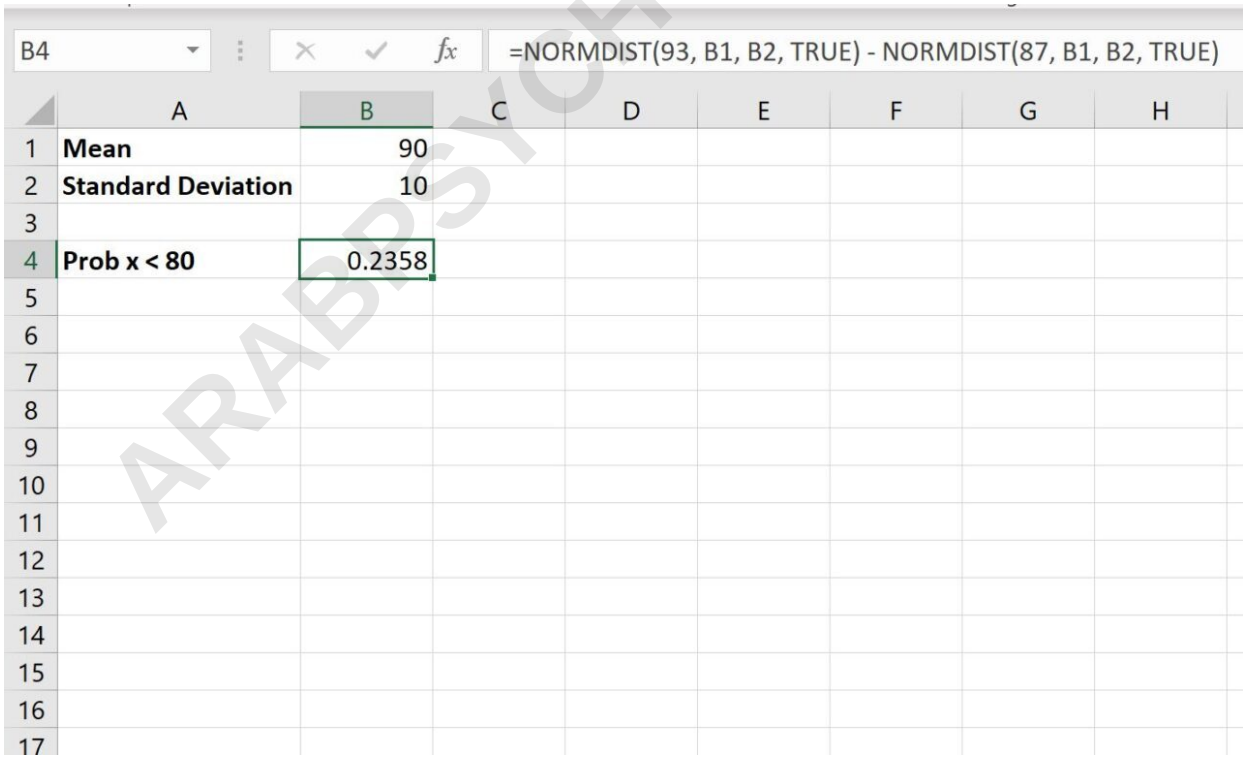


Example 3: Calculate Probability Between Two Values

Suppose the scores for an exam are normally distributed with a mean of 90 and a standard deviation of 10.

Find the probability that a randomly selected student receives a score between 87 and 93.

To find this probability, we can subtract the larger value of NORMDIST() from the smaller value of another NORMDIST() in Excel as follows:



The probability that a randomly selected student

receives a score between 87 and 93 is 0.2358.

Additional Resources

The following tutorials explain how to perform other tasks related to the normal distribution in Excel: