

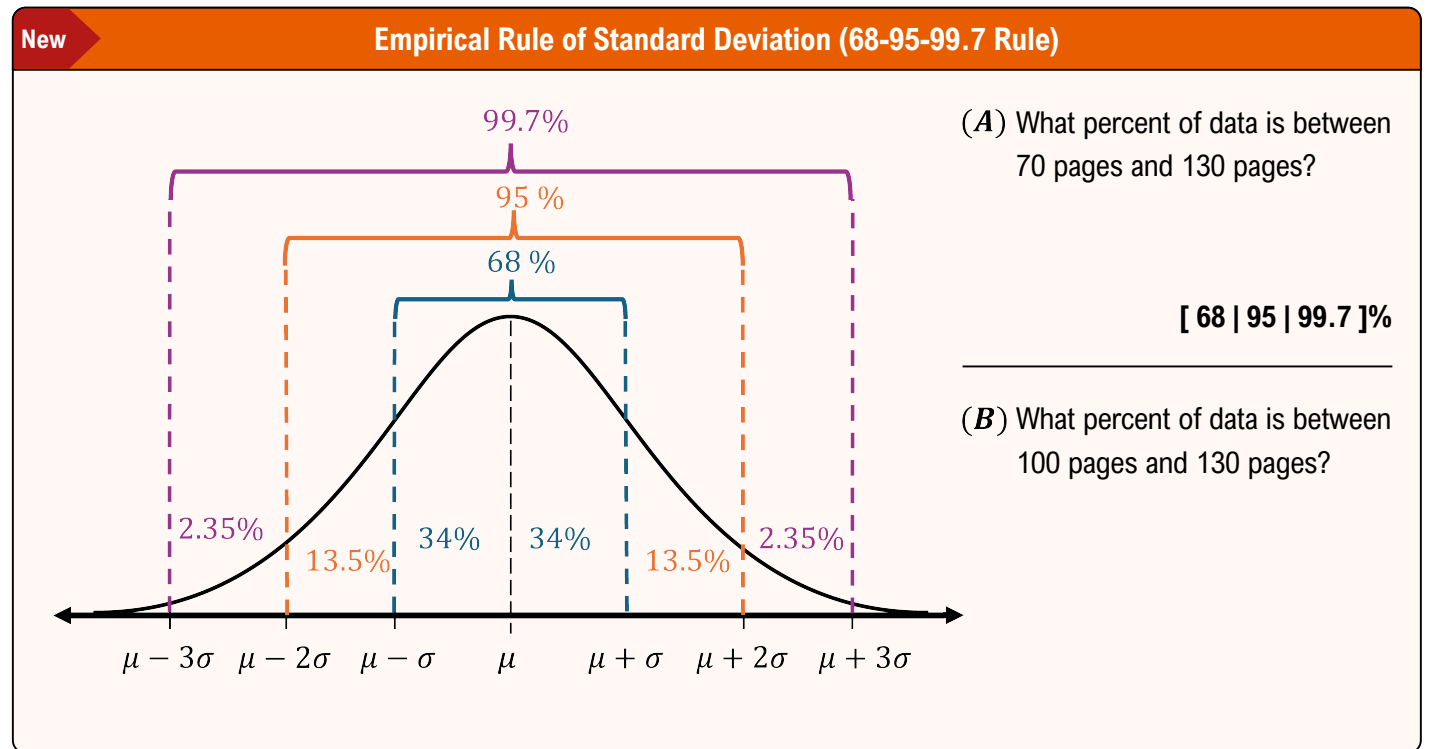
TOPIC: INTERPRETING STANDARD DEVIATION

Empirical Rule of Standard Deviation

◆ **Empirical Rule of Standard Deviation** gives the ____ of data within 1, 2, or 3 σ on either side of μ for bell curves.

EXAMPLE

The page counts in chapter books at an elementary school library are normally distributed with $\mu = 100$ and $\sigma = 10$. Use the Empirical Rule of Standard Deviation to answer the questions below.



PRACTICE

A sample of 500 random adult books in a library has an average of 312 pages with a standard deviation of 26 pages. Find the percentage of books in the sample with less than 338 pages using the Empirical Rule of Standard Deviation.

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PRACTICE

A sample of 500 random adult books in a library has an average of 312 pages with a standard deviation of 26 pages. According to the Empirical Rule of Standard Deviation, find the central range of page lengths containing 95% of the books in the sample.

PRACTICE

The average birth weight at a hospital is 6.5 lbs with a standard deviation of 1.4lbs. What is the lowest weight which would be considered significantly high? *Hint: Range Rule of Thumb - Numbers which are 2 or more standard deviations away from the mean are considered "significant".*

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EXAMPLE

A sample of 250 wait times at a restaurant have a mean of 8 minutes with a standard deviation of 2 minutes 30 seconds. Use the Empirical Rule of Standard Deviation to answer the following questions.

(A) What percentage of wait times is between 3 minutes and 10 minutes 30 seconds?

(B) What percentage of wait times is greater than 30 seconds?

(C) The people with the highest 2.5% of wait times get a coupon to the restaurant. What is the minimum wait time to get the coupon?

EXAMPLE

After picking 200 songs at random, a student determines that songs typically range from 2.3 minutes to 4.7 minutes. Use the range rule of thumb to estimate the standard deviation of song length. *Hint: Range Rule of Thumb - Numbers which are 2 or more standard deviations away from the mean are considered "significant".*