Normal Distribution

Part 3

Normal Distribution - Examples

- **Example 1:** As part of its quality assurance program, the Autolite Battery Company conducts tests on battery life. For a particular D-cell alkaline battery, the mean life is 19 hours. The useful life of the battery follows a normal distribution with a standard deviation of 1.2 hours.

Answer the following questions.

1. About 68 percent of the batteries failed between what two values?
2. About 95 percent of the batteries failed between what two values?
3. Virtually all of the batteries failed between what two values?

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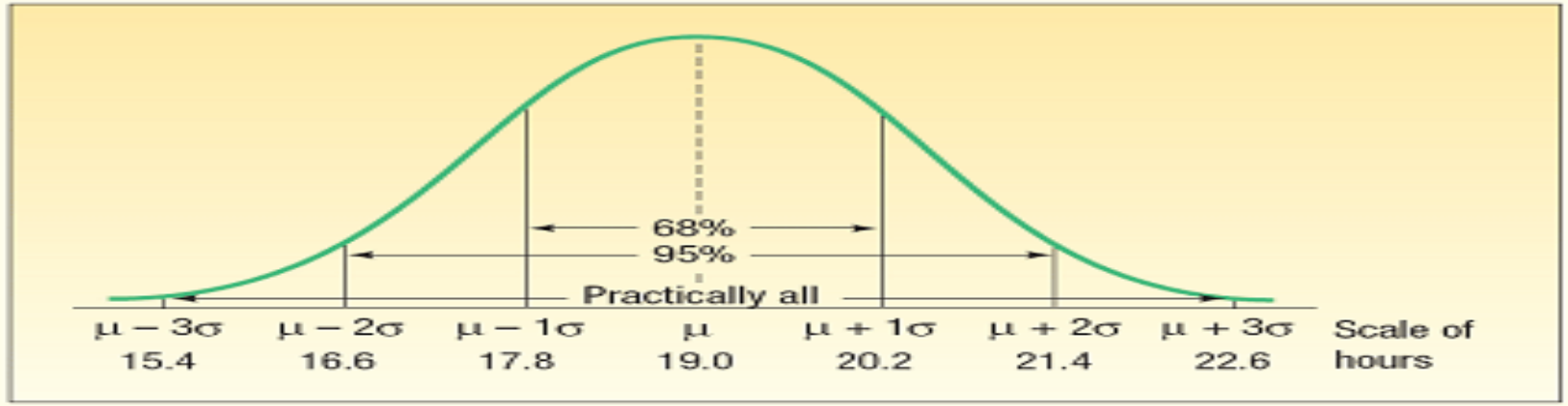
We can use the results of the Empirical Rule to answer these questions.

1. About 68 percent of the batteries will fail between 17.8 and 20.2 hours by 19.0 $\pm$ 1(1.2) hours.
2. About 95 percent of the batteries will fail between 16.6 and 21.4 hours by 19.0 $\pm$ 2(1.2) hours.
3. Virtually all failed between 15.4 and 22.6 hours, found by 19.0 $\pm$ 3(1.2)

This information is summarized on the following chart.



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THANK YOU