# MathFLIX CHALLENGE

October 11, 2007
Standard Deviation

A bell-shaped curve creates a very interesting pattern that illustrates the distribution of a large set of data. Standard deviation is used to describe how the data on the curve differs from the mean, with more of the data points in the middle and fewer on the ends. Study our model below to see how the bell curve's symmetry shows standard deviation.

Model

2% | 14% | 34% | 34% | 14% | 2%
-2 standard deviation | -1 standard deviation | mean | +1 standard deviation | +2 standard deviation

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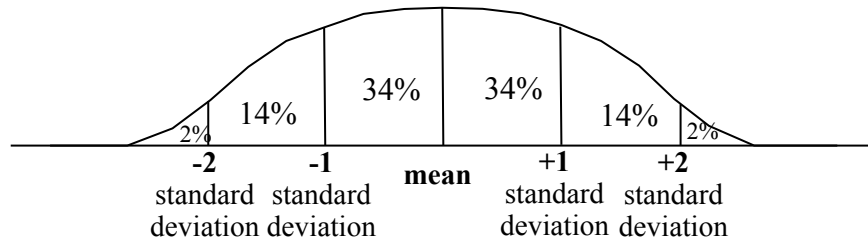
Distribution of Distance between home and school for Banneker High School 9th graders

One hundred 9th graders at Banneker High School were asked how far they lived from the school. Analysis of the data showed that the mean distance from the school was 5 km with a standard deviation of 2km. (M=5/S.D. = 2) . Can you label the rest of the curve?
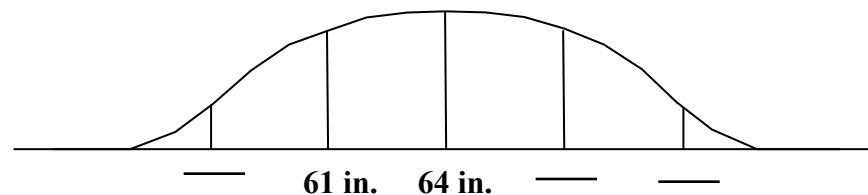
Mean = 5km
Standard Deviation = 2km

34%

___   ___   5km   7km   9km
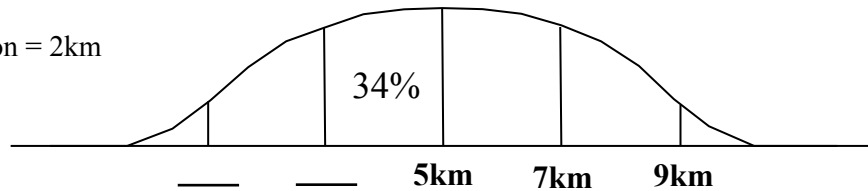
Distribution of Height for Banneker High School 9th graders

These same 9th graders at Banneker High School were also asked about their height. Using the mean and standard deviation provided, can you label the curve?

M = 64 in.
S.D. = 3 in.

___   61 in.   64 in.   ___   ___

Distribution of Test Scores for Banneker High School 9th graders

The test scores of these same 9th graders at Banneker High School were also analyzed. Using the mean and standard deviation provided, can you label the curve?

M = 500
S.D. = 100

34%

400   500