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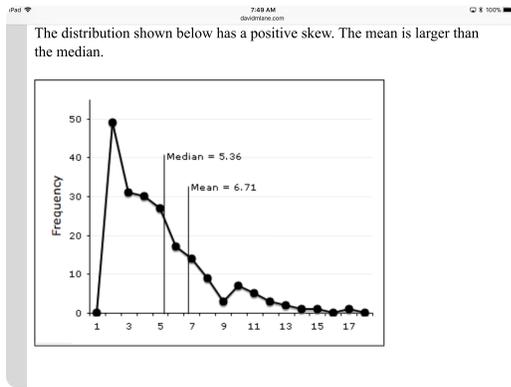


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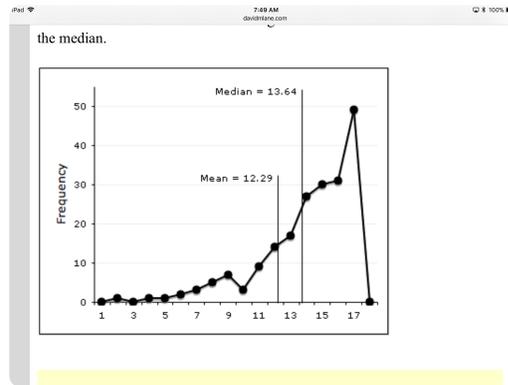


## Positively skewed



Mean > Median

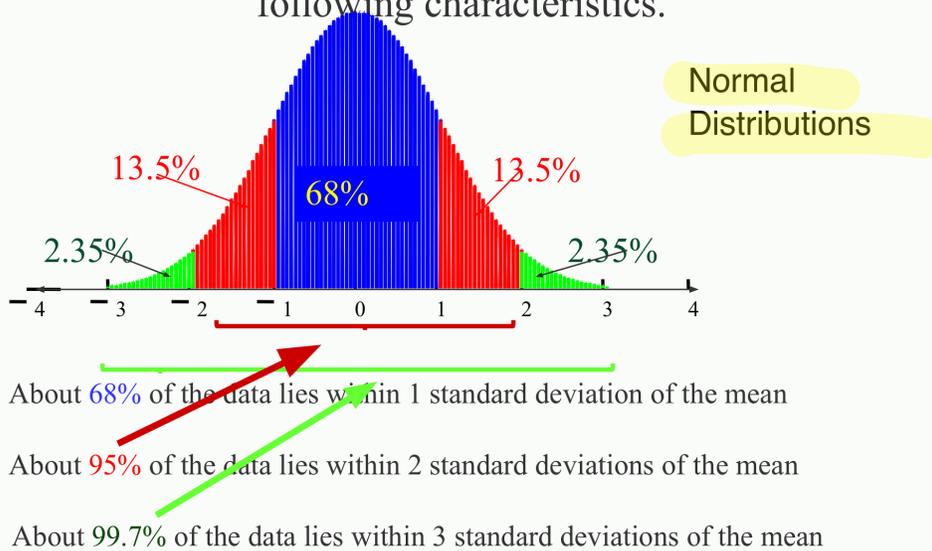
## Negatively skewed



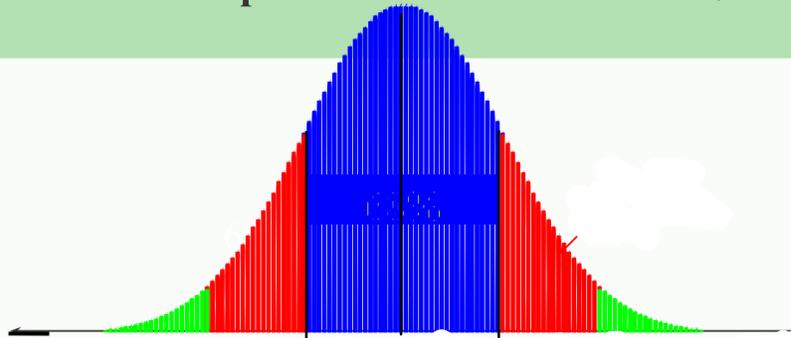
Mean < Median

## Empirical Rule (68-95-99.7%)

Data with **symmetric bell-shaped** distribution has the following characteristics.



The mean value of homes on a street is \$125 thousand with a standard deviation of \$5 thousand. The data set has a bell shaped distribution. Estimate the percent of homes between \$120 and \$135 thousand



Name: \_\_\_\_\_

## Interpreting Standard Deviation Worksheet

- The mean height of adult men is 70" with a standard deviation of 3".
  - Draw a bell curve to represent this situation.
  - 68% of men will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
  - 95% of men will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
  - 99.7% of men will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
- The mean height of adult women is 63.5" with a standard deviation of 2.5".
  - Draw a bell curve to represent this situation.
  - 68% of women will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
  - 95% of women will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
  - 99.7% of women will be between \_\_\_\_\_ inches and \_\_\_\_\_ inches.
- Use the information for #2 and #3. Jared is 73" tall. Kayla is 68.5" tall. Who is actually "taller" when compared to other people of the same gender? Explain.
- The mean of an IQ test is 100 with a standard deviation of 15.
  - Draw a bell curve to represent this situation.
  - In order to be a member of MENSA, you must score at least 3 standard deviations above the mean. How high must you score to be a member of MENSA?
- You want to know about how many words per minute people can type. You ask 10 adults how fast they can type in words per minute. Here are the results.

25, 30, 37, 37, 42, 45, 45, 46, 50, 60

  - Find the mean of the data.
  - Find the standard deviation of the data.
  - Draw a bell curve representing this situation.
  - Based on this data, if you were to type 60 words per minute, you would type faster than about what percent of the population?
- You are trying find average resting heart rate for an adult woman. You ask 10 women what their resting heart rate is. Here are the results in beats per minute.

59, 63, 65, 69, 70, 70, 72, 73, 78, 79

  - Find the mean.
  - Find the standard deviation.
  - Draw a bell curve to represent this situation.
  - 68% of women will have resting heart rate between \_\_\_\_\_ bpm and \_\_\_\_\_ bpm.

①

The lifespans of zebras in a particular zoo are normally distributed. The average zebra lives 20.5 years; the standard deviation is 3.9 years.

Use the empirical rule (68 – 95 – 99.7%) to estimate the probability of a zebra living between 16.6 and 24.4 years.

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②

The lifespans of zebras in a particular zoo are normally distributed. The average zebra lives 20.5 years; the standard deviation is 3.9 years.

Use the empirical rule (68 – 95 – 99.7%) to estimate the probability of a zebra living less than 32.2 years.

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③

The lifespans of gorillas in a particular zoo are normally distributed. The average gorilla lives 16 years; the standard deviation is 1.7 years.

Use the empirical rule (68 – 95 – 99.7%) to estimate the probability of a gorilla living longer than 14.3 years.

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④

The lifespans of tigers in a particular zoo are normally distributed. The average tiger lives 22.4 years; the standard deviation is 2.7 years.

Use the empirical rule (68 – 95 – 99.7%) to estimate the probability of a tiger living between 27.8 and 30.5 years.

