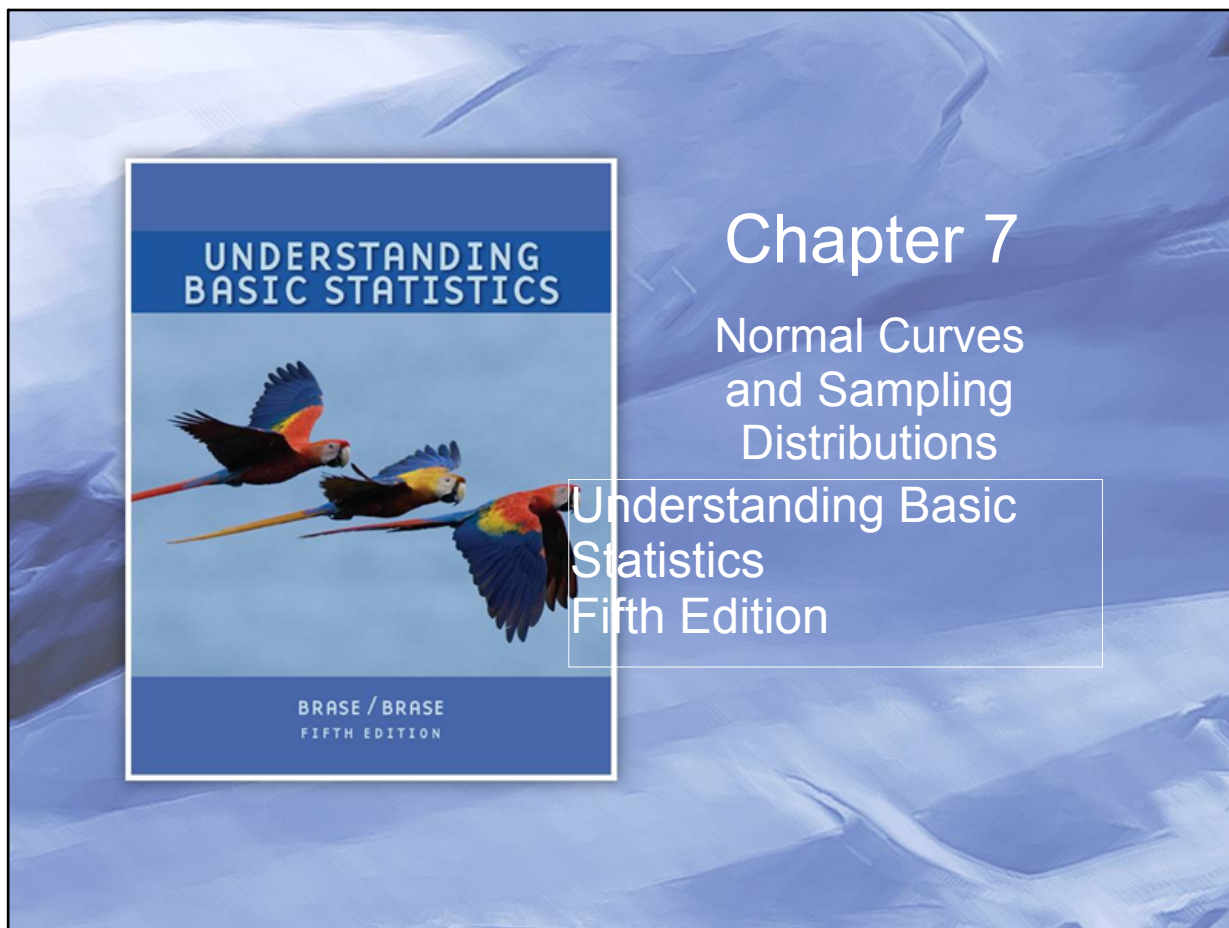


Login your clickers & yes calculators.

Have out the chapter 7 power point notes and 7.1 fill-in-the blank to begin.

May 23-6:58 AM



Nov 5-3:20 PM

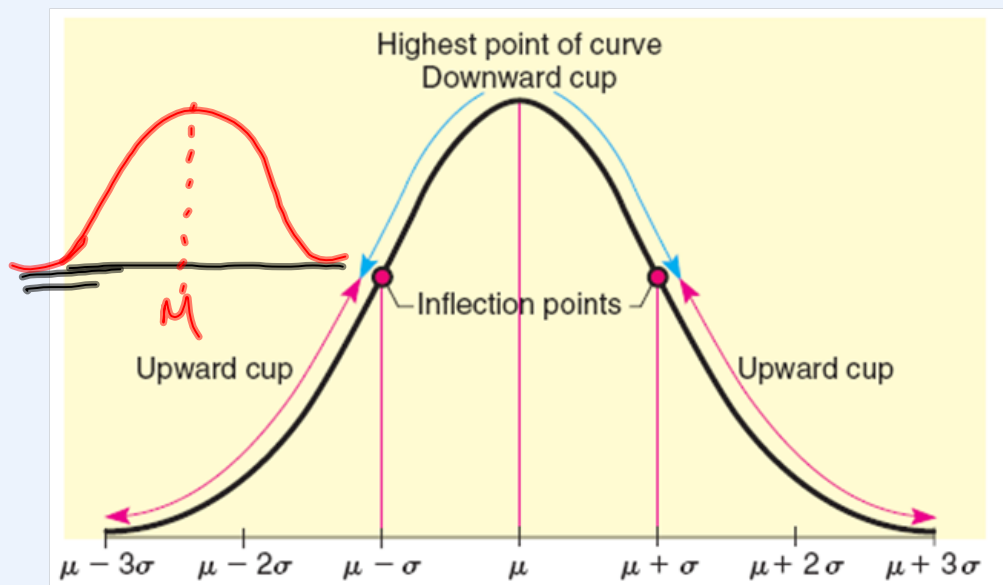
The Normal Distribution

- A continuous distribution used for modeling many natural phenomena.
- Sometimes called the Gaussian Distribution, after Carl Gauss.
- The defining features of a Normal Distribution are the mean, μ , and the standard deviation, σ .



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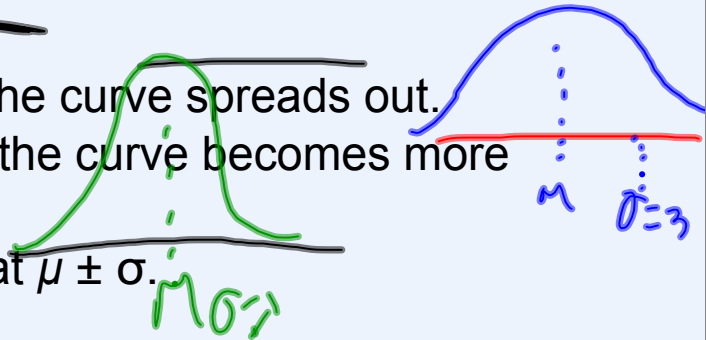
The Normal Curve



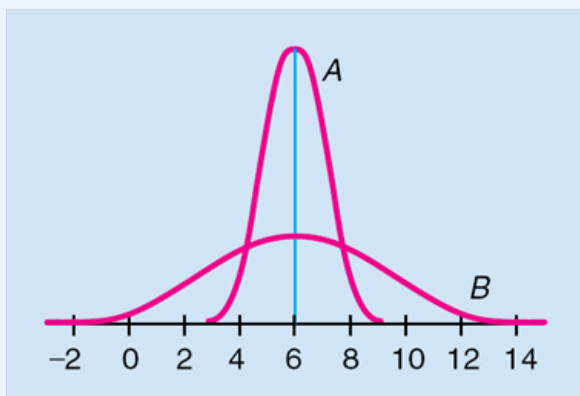
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Features of the Normal Curve

- Smooth line and symmetric around μ .
- Highest point directly above μ .
- The curve never touches the horizontal axis in either direction.
- As σ increases, the curve spreads out.
- As σ decreases, the curve becomes more peaked around μ .
- Inflection points at $\mu \pm \sigma$.



Two Normal Curves



Both curves have the same mean, $\mu = 6$.

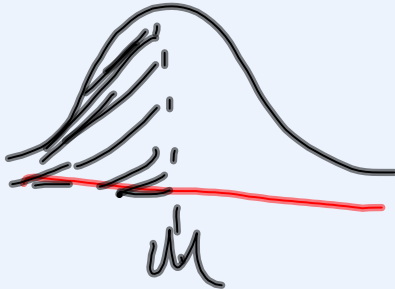
Curve A has a standard deviation of $\sigma = 1$.

Curve B has a standard deviation of $\sigma = 3$.



Normal Probability

- The area under any normal curve will always ~~be~~ 1.
- The portion of the area under the curve within a given interval represents the probability that a measurement will lie in that interval.



The Empirical Rule

~~Empirical rule~~

For a distribution that is symmetrical and bell-shaped (in particular, for a normal distribution):

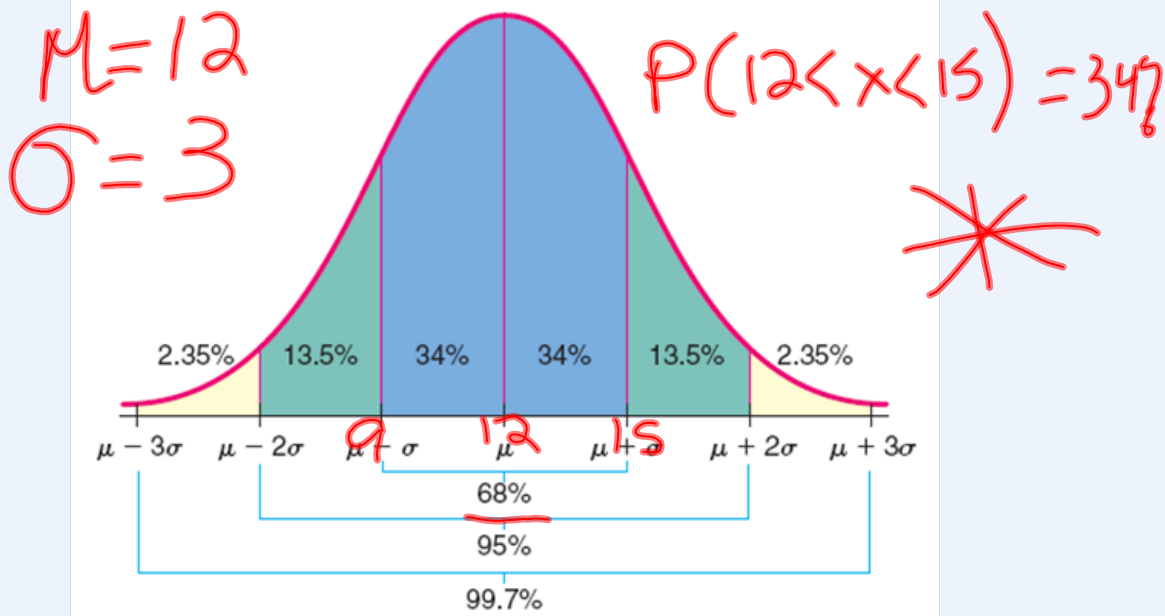
Approximately 68% of the data values will lie within one standard deviation on each side of the mean.

Approximately 95% of the data values will lie within two standard deviations on each side of the mean.

Approximately 99.7% (or almost all) of the data values will lie within three standard deviations on each side of the mean.



The Empirical Rule



1 Answer? The Empirical Rule

The masses of the adult ostriches at the Vilas Zoo are normally distributed with a mean of 124 kg and a standard deviation of 10 kg.

What is the probability that a randomly-selected ostrich will have a mass between 124 kg and 154 kg?

- a). 0.15%
- b). 99.85%
- c). 49.85%
- d). 47.5%

