Resources for Review

The example in the next part of the lesson assumes you are familiar with Gaussian and binomial distributions.

Here are a few formulas that might be helpful:

Gaussian Distribution Formulas

probability density function

$$f(x \mid \mu, \sigma^2) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

where:

μ is the mean

σ is the standard deviation

σ^2 is the variance

Binomial Distribution Formulas

mean

$$\mu = n * p$$

In other words, a fair coin has a probability of a positive outcome (heads) p = 0.5. If you flip a coin 20 times, the mean would be 20 * 0.5 = 10; you'd expect to get 10 heads.

variance

$$\sigma^2 = n * p * (1 - p)$$

Continuing with the coin example, n would be the number of coin tosses and p would be the probability of getting heads.

standard deviation

$$\sigma = \sqrt{n * p * (1 - p)}$$

or in other words, the standard deviation is the square root of the variance.

probability density function

$$f(k, n, p) = \frac{n!}{k!(n-k)!} p^k (1-p)^{(n-k)}$$

Further Resources

If you would like to review the Gaussian (normal) distribution and binomial distribution, here are a few resources:

This free Udacity course, Intro to Statistics, has a lesson on Gaussian distributions as well as the Binomial distribution.

This free course, Intro to Descriptive Statistics, also has a Gaussian distributions lesson.

Here are the wikipedia articles:

- Gaussian Distributions Wikipedia
- Binomial Distributions Wikipedia