Binominal...

Suppose an event occurs with probability p per trial. Then what is the probability of its occuring k or more (or less) times in n trials?

To solve this problem, you have three choices. The most reliable method is using a binominal distribution. The binominal distribution can apply to all possible p, n, and k combinations. The problem was that it was fairly difficult to culculate actual binominal values. But this was before the age of Macintosh. Now it is just as easy and fast to calculate them as other statistics.

The second choice is the Poisson distribution. When the population proportion (p) is close to 0.0 and the expected occurrence of an event (p x n) is small, the binominal distribution can be approximated by the Poisson distribution.

The third option is the normal distribution. This statistics apply to the cases when the population proportion (p) is close to 0.5 and the total number of trials (n) is large.

Use the probability based on the binominal distribution first. Other statistics are primarily an approximation of it.

First input a population proportion (p), the number of case (k), and the total number of trials (n) into a respective box. A neat feature is that you can input formulae here. For example, an ideal dice should have the probability of 1/6 of showing up each face. Just write 1/6 instead of 0.166666667. Since Macintosh uses 96-bit real numbers internally, 1/6 is not only easier to input, but much more precise. It accepts +, -, *, /, ^, sin, cos, log, exp, (, and ).

Then press “Go” or the RETURN key. It will calculate all the statistics almost instantly.

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