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Normal approx to binomial

What is normal approximation to the binomial. Normal to binomial.

Sometimes, it is difficult or impossible to use the formula or the binomial probability tables because the value of N is too large. The binomial tables provided with the exams usually go up to n = 10. When n has a large binomial probability distribution it starts to look more like normal probability distributions . Binomial, when n = 20 and p = 0.2 Binomial, when n = 20 and p = 0.5 Almost bell-shaped but distorted. Bell is "shape and symmetrical by the two graphs of the line, you can see that for large values of N with P close to 0.5 the normal distribution can be used instead of the binomial. If q = 1 is P, then a good test is to say that if it is NP ± 5 e-NQ ± 5, then the normal can be used. Note that since binomial values are discrete and normal values continuous corrections are required. The values of the mean and the standard deviation needed for the normal distribution are $\mu = NP$ and $\sigma = \sqrt{NPQ}$ (NPO) to summarize: for large values of N with P close to 0.5 the normal distribution approximates the test Binomial Distribution NP ± 5NQ ± 5 New Parameters $\mu = NP$ $\sigma = \sqrt{NPQ}$ Example When 20 coins are tossed, what is the probability that between 9 and 14 heads, including, will result? Solution This is a problem binomial with N = 20 and P = 0.5. Most tables don't go to 20, and to use the binomial formula would be a long process, so consider the normal approximation. Step 1] Test to see if this is appropriate. NP = 20 $\times$ 0.5 = 10 e NQ = 20 $\times$ 0.5 $\times$ 0.5 = 10. Both are greater than 5. Step 2] Find the new parameters. $\mu = np = 20 \times 0.5 = 10$ $\sigma = \sqrt{NPQ} = \sqrt{20 \times 0.5 \times 0.5} = 2.24$ (at 3 s.f.) Step 3. Apply continuity correction.Let X be the number of heads thrown

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