If the probability distribution is a common *discrete* distribution, you can simply use a built-in function from Excel’s set of statistical functions to compute any probability from it.

For example, to find the probability that a binomial random variable with p=0.25 yields 3 successes in 5 trials, you can use =BINOM.DIST(3,5,0.25,FALSE). The final parameter, FALSE, tells Excel you are asking only about 3 successes, not the cumulative probability of *up to 3* successes.

Table

Description automatically generated

For other discrete random variables, see the Excel help on POISSON.DIST and HYPGEOM.DIST.

If the probability distribution is a common *continuous* distribution, you must ask about the probability of a random value falling in a certain range. You do so by subtracting two outputs of the cumulative distribution function (CDF).

For example, to find the probability that a normal random variable with mean 5 and standard deviation 2 falls in the interval [6,7], you can use =NORM.DIST(7,5,2,TRUE)-NORM.DIST(6,5,2,TRUE). Notice:

* It is important to subtract the lower end of the interval from the higher end, not the other way around. (If your probability comes out negative, you have it backwards.)
* The final parameter, TRUE, tells Excel you are using the CDF of the distribution. If you use FALSE instead, you will get a wrong answer.

Table

Description automatically generated

For other continuous random variables, see the Excel help on BETA.DIST, CHISQ.DIST, F.DIST, GAMMA.DIST, LOGNORM.DIST, and T.DIST.