8.4 The Binomial Distribution

To calculate a single binomial probability:

2nd and DISTR

Choose 0: binom**pdf**(

Usage: binompdf (number of trials, probability of success, number of successes)

Complete the appropriate values.

For example: binompdf(4, 0.2, 3) means the experiment consists of 4 trials with probability of success 0.2, and you want to find the probability of exactly 3 successes.

Press Enter.

To calculate several binomial probabilities:

2nd and DISTR

Choose A: binom**cdf**(

Usage: binomcdf (number of trials, probability of success, number of successes)

Complete the appropriate values.

For example: binomcdf(4, 0.2, 3) means the experiment consists of 4 trials with probability of success 0.2, and you want to find the probability of 3 or fewer successes.

Press Enter.

You may need either binompdf or binomcdf depending upon the situation.

- binompdf
  - The probability density function (pdf) that computes the probability of a single trial
  - binompdf(number of trials, probability of success, *r* number of successes) will give you the probability P($X = r$).
  - binompdf(number of trials, probability of success) will give you a list of the probabilities for all possible values of *r*. You will have to use the right arrow key to see the whole list, starting with $r = 0$.
  - binompdf(number of trials, probability of success) STO→L1 will give you all the probabilities starting with $r = 0$ and will store them in L1 for easier viewing.
- binomcdf
  - The cumulative density function, i.e. it sums the probabilities.
  - binomcdf(number of trials, probability of success, *r* number of successes) will give the sum of the probabilities from 0 to *r*.
  - binomcdf(number of trials, probability of success) will give a list of the probability sums from 0 to *r* for all possible values of *r*. You will have to use the right arrow key to see the whole list, starting with $r = 0$.
  - binomcdf (number of trials, probability of success) STO→L1 will give a list of the probability sums from 0 to *r* for all possible values of *r* and will store them in L1 for easier viewing.

8.5 The Normal Distribution

To calculate standard normal probabilities ($\mu = 0,\ \sigma = 1$)*:*

2^{nd} and DISTR
Choose 2: normal**cdf**(
Usage: normalcdf (minimum value, maximum value)
Complete the appropriate values.
For example: normalcdf(−1, 1) gives the value of $P(-1 < Z < 1)$.
Press Enter.

To calculate non-standard normal probabilities:

2^{nd} and DISTR
Choose 2: normal**cdf**(
Usage: normalcdf (minimum value, maximum value, μ, σ)
Complete the appropriate values.
For example: normalcdf(1, 3, 2, 0.5) gives the value of $P(1 < X < 3)$ for the normal variable X with $\mu = 2$ and $\sigma = 0.5$.
Press Enter.

To calculate the value of X given the probability:

2^{nd} and DISTR
Choose 3: invNorm(
Usage: invNorm(probability, μ, σ)
Complete the appropriate values.
For example: invNorm(0.3, 2, 0.5) gives the value a of the normal variable X with $\mu = 2$ and $\sigma = 0.5$ for which $P(X < a) = 0.3$.
Press Enter.