14. Calculating binomial probabilities on the calculator

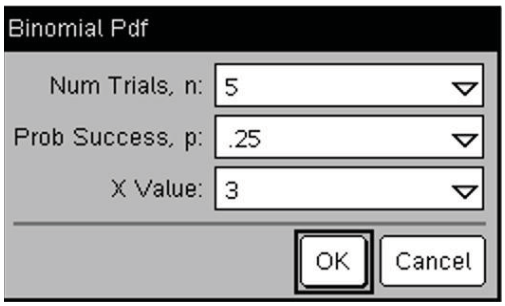
There are two handy commands on the TI-Nspire for finding binomial probabilities:

`binomPdf(n,p,k)` computes $P(X = k)$

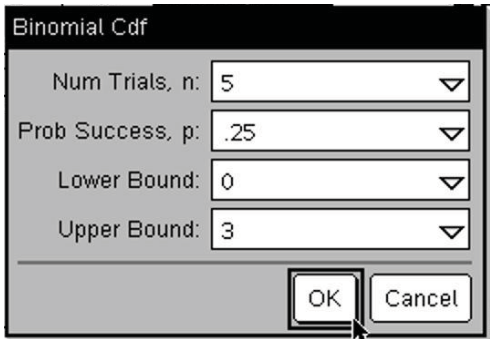
`binomCdf(n,p,k)` computes $P(X \le k)$

You will need to open the *Calculator* Scratchpad (press ⌨ or ⌂ on A on the clickpad). These two commands can be found in the *Distributions* menu within the *Statistics* menu. You can access them by pressing menu → *Statistics* → *Distributions*. A dialogue box will appear asking for your input. Type *n* (the number of observations), *p* (probability of success), and *k* (number of successes).

Binomial Pdf



Binomial Cdf



For the parents having $n = 5$ children, each with probability $p = 0.25$ of type O blood:

$P(X = 3)$ = `binomPdf(5,0.25,3)` = 0.08789

To find P(X > 3), we used the complement rule:

$P(X>3)=1-P(X\le 3)$ = 1 - `binomCdf(5,0.25,3)` = 0.01563

Of course, we could also have done this as

$P(X>3)=P(X=4)+P(X=5)$

= `binomPdf(5,0.25,4)` + `binomPdf(5,0.25,5)`

= 0.01465 + 0.00098 = 0.01563

On the TI-Nspire, you can also calculate using:

$P(X>3)=P(X=4)+P(X=5)$

= `binomCdf(5,0.25,4,5)`

= 0.01563