Binomial Probability Distribution
&
Normal Probability Distribution

Tips & Formulas:

1. Always make sure that the problem you are working on is properly written in a format that contains $x =$, $x \leq$, $x \geq$, or $\leq x \leq$.

2. Use the following formulas to find the mean and standard deviation of the binomial probability distribution:

   (a) $\mu = np$

   (b) $\sigma = \sqrt{npq}$

Binomial Distribution	Normal Distribution
$P(x = a) =$ **binompdf**(n, p, a)	$P(x = a) \approx P(a - 0.5 < x < a + 0.5) =$ **normalcdf**$(a - 0.5, a + 0.5, \mu, \sigma)$
$P(x \leq a) =$ **binomcdf**(n, p, a)	$P(x \leq a) \approx P(x < a + 0.5) =$ **normalcdf**$(-E99, a + 0.5, \mu, \sigma)$
$P(x \geq a) = 1 - P(x \leq a - 1) =$ $1 -$ **binomcdf**$(n, p, a - 1)$	$P(x \geq a) \approx P(x > a - 0.5) =$ **normalcdf**$(a - 0.5, E99, \mu, \sigma)$
$P(a \leq x \leq b) =$ **binomcdf**$(n, p, b) -$ **binomcdf**$(n, p, a - 1)$	$P(a \leq x \leq b) \approx P(a - 0.5 < x < b + 0.5) =$ **normalcdf**$(a - 0.5, b + 0.5, \mu, \sigma)$