3. Consider a bag of well mixed marbles. The bag contains 8 black marbles and 7 white marbles. You are to draw out 4 marbles without replacement. What is the probability of getting 3 black marbles?

$n = 4$

$k = 3$

$p = \frac{8}{15}$

$q = \frac{7}{15}$

$P(X=k) = C(n,k)\, p^k\, q^{n-k}$

$P(X=3) = C(4,3)\left(\frac{8}{15}\right)^3\left(\frac{7}{15}\right)^{4-3}$

$P(X=3) = (4)\left(\frac{512}{3375}\right)\left(\frac{7}{15}\right)$

$P(X=3) = (4)(.1517)(.4666)$

$\boxed{P(X=3) = 0.28318}$

The probability of getting 3 black marbles is 0.28318 or about 28.3%

4. Evil Mike, a professor at C.S.O.M give an exam for which the results are approximately normally distributed with a mean $\mu = 65$ and standard deviation $\sigma = 5$. To get an A you need to