

§ 9.4 NORMAL APPROXIMATION TO BINOMIAL DISTRIBUTIONS

Let X be a BINOMIAL RANDOM VARIABLE WITH n TRIALS &
PROBABILITY OF SUCCESS p (& PROBABILITY OF FAILURE $q = 1 - p$).

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

But WHAT IF WE WANT TO FIND $P(X \leq k)$?

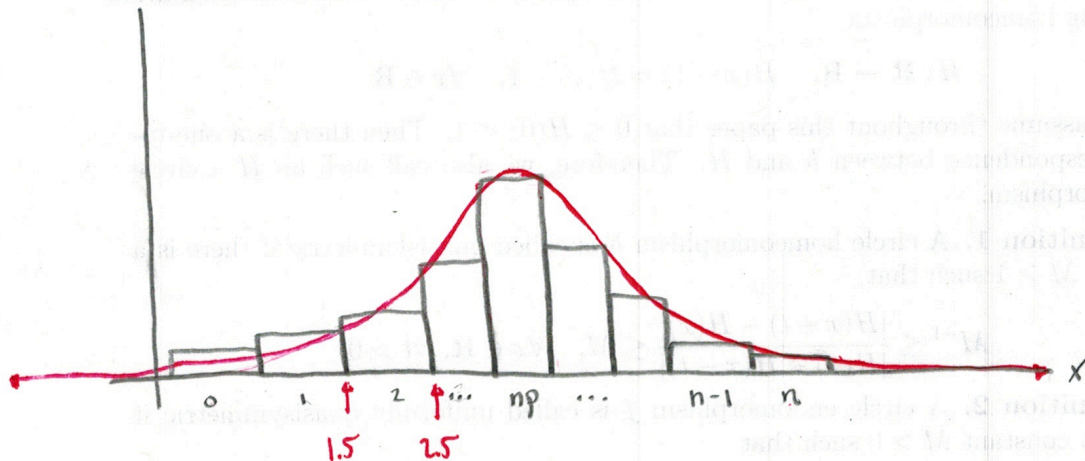
$$P(X \leq k) = P(X = 0) + P(X = 1) + \dots + P(X = k)$$


BETTER WAY ? OBSERVE :


X IS BINOMIAL WITH n TRIALS, PROB. SUCCESS p

X HAS MEAN $\mu = np$

STANDARD DEVIATION $\sigma = \sqrt{npq}$



 ACTUAL DISTRIBUTION (BINOMIAL)

 NORMAL DISTRIBUTION WITH MEAN $\mu = np$,
STANDARD DEV. $\sigma = \sqrt{npq}$

