

Binomial and normal distributions



Binomial
 $X \sim B(n, p)$ **B**

$$P(X = x) = \binom{n}{x} p^x (1 - p)^{n-x}$$

Binomial mean, variance **B**

$$E(X) = np, \quad \text{Var}(X) = np(1 - p)$$

Standard normal

$$Z = \frac{X - \mu}{\sigma} \sim N(0, 1)$$

Normal approx. to
 $B(n, p)$ (n large, p
near $\frac{1}{2}$)

$$N(np, np(1 - p))$$

B given in the exam. Learn the rest.