

EGR252.001 S07 Test 1 Formula Sheet

$P(H \cup F) = P(H) + P(F) - P(H \cap F)$	$P(B A) = P(B \cap A) / P(A)$
$\mu = E(X) = \sum x f(x)$	$\sigma^2 = \sum (x - \mu)^2 f(x) = E(X^2) - \mu^2$
$\mu(X) = \left[ \int_a^b x f(x) dx \right]$	$\sigma^2(X) = \left[ \int_a^b x^2 f(x) dx \right] - \mu^2$
$b(x; n, p) = \binom{n}{x} p^x q^{n-x}$	$\mu = np$ $\sigma^2 = npq$
$f(x_1, x_2, \dots, x_k; p_1, p_2, \dots, p_k, n) =$ $\binom{n}{x_1, x_2, \dots, x_k} p_1^{x_1} p_2^{x_2} \dots p_k^{x_k}$	$p(x; \lambda t) = \frac{e^{-\lambda t} (\lambda t)^x}{x!}, x = 0, 1, 2, \dots$
$P(X = x) = h(x; N, n, k) = \frac{\binom{k}{x} \binom{N-k}{n-x}}{\binom{N}{n}}$	$\mu = \frac{nk}{N}$ $\sigma^2 = \frac{N-n}{N-1} * n * \frac{k}{N} (1 - \frac{k}{N})$
$b^*(x; k, p) = \binom{x-1}{k-1} p^k q^{x-k}, x = k, k+1, k+2, \dots$	$g(x; p) = pq^{x-1}$