

Accel Precalc Formula Sheet For Midterm Exam

Units #1, 2, 3, 4

Formulas:

Probability Distributions: $E(X) = \mu_x = \sum x_i p_i$ $\text{Var}(X) = \sigma_x^2 = \sum (x_i - \mu_x)^2 p_i$ $\text{StdDev}(X) = \sqrt{\text{var}(X)}$

Binomial Distributions: If X has a binomial distribution with Parameters n and p , then:

$$P(X = k) = \binom{n}{k} p^k (1-p)^{n-k} \qquad \mu_x = np \qquad \sigma_x = \sqrt{np(1-p)}$$

$$\mu_{\hat{p}} = p$$

$$\sigma_{\hat{p}} = \sqrt{\frac{p(1-p)}{n}}$$

Normal Distributions: Standardized test statistic: $\frac{\text{statistic} - \text{parameter}}{\text{standard deviation of statistic}}$

Confidence Intervals: $\text{statistic} \pm (\text{critical value}) \cdot (\text{standard deviation of statistic})$

Statistic	Standard Deviation Of Statistic
Sample Mean	$\frac{\sigma}{\sqrt{n}}$
Sample Proportion	$\sqrt{\frac{p(1-p)}{n}}$

Arithmetic and Geometric Sequences:

$$S_n = n \left(\frac{a_1 + a_n}{2} \right) \qquad S_n = \frac{a_1 (1 - r^n)}{1 - r} \qquad S_n = \frac{a_1}{1 - r}$$

$$a_n = a_1 + d(n - 1)$$

$$a_n = a_1 \cdot r^{n-1}$$