5.8: Chapter 5 Formulas

Discrete Distribution Table: $0 \le P(x_i) \le 1$ $\sum P(x_i) = 1$	**Discrete Distribution Mean:** $\mu = \Sigma(x_i \cdot P(x_i))$
Discrete Distribution Variance: $\sigma^2 = \sum(x_i^2 \cdot P(x_i)) - \mu^2$	**Discrete Distribution Standard Deviation:** $\sigma = \sqrt{\sigma^2}$
Geometric Distribution: $P(X = x) = p \cdot q^{(x-1)}$, x = 1, 2, 3, …	**Geometric Distribution Mean:** $\mu = \frac{1}{p}$ Variance: $\sigma^2 = \frac{1-p}{p^2}$ Standard Deviation: $\sigma = \sqrt{\frac{1-p}{p^2}}$
Binomial Distribution: $P(X = x) = {}_nC_x \cdot p^x \cdot q^{(n-x)}$, x = 0, 1, 2, … , n	**Binomial Distribution Mean:** $\mu = n \cdot p$ Variance: $\sigma 2 = n \cdot p \cdot q$ Standard Deviation: $\sigma = \sqrt{n} \cdot p \cdot q$
Hypergeometric Distribution: $P(X = x) = \frac{{}_aC_x \cdot {}_bC_{n-x}}{{}_NC_n}$	p = P(success) q = P(failure) = 1 – p n = sample size N = population size
Unit Change for Poisson Distribution: New μ = old μ($\frac{\text{new units}}{\text{old units}}$)	**Poisson Distribution:** $P(X = x) = \frac{e^{-\mu}\mu^x}{x!}$

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