

Math 16B

Kouba

Discrete Probability , Definitions

Let $\{x_1, x_2, x_3, \dots, x_m\}$ be m outcomes for a discrete random variable, x , and let $p_1, p_2, p_3, \dots, p_m$ be the associated probabilities.

1.) The MEAN , μ , or EXPECTED VALUE , $E(x)$, of x is

$$\mu = E(x) = x_1 p_1 + x_2 p_2 + x_3 p_3 + \dots + x_m p_m .$$

2.) The VARIANCE , $V(x)$, of x is

$$V(x) = (x_1 - \mu)^2 p_1 + (x_2 - \mu)^2 p_2 + (x_3 - \mu)^2 p_3 + \dots + (x_m - \mu)^2 p_m .$$

3.) The STANDARD DEVIATION , σ , of x is $\sigma = \sqrt{V(x)}$.