

MATH 134A Review: Expectation and Variance

Facts to Know

Let X be a (discrete) random variable with probability distribution function $p(x) = \mathbb{P}(X = x)$.

The expectation or “center” of X is

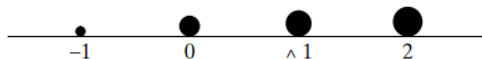
$$\mathbb{E}(X) = \sum_x xp(x)$$

Let $\mu = \mathbb{E}(X)$. The variance or “spread” of X about μ is

$$\mathbb{E}((X - \mu)^2)$$

Examples

A random variable X may take values of either $-1, 0, 1, 2$ with probabilities $0.10, 0.25, 0.30, 0.35$, respectively.



1. Find the expectation of X .

2. Find the variance of X .