

# Homework 1

2024-08-29

**Homework 1 is due 9/7/2024 at 11:59 PM. Submit your homework on Canvas as one PDF document.**

1.  $X \sim Bin(n, p)$ , show that the variance of Binomial distribution is  $np(1 - p)$ .
2.  $X \sim Pois(\lambda)$ , show that the expected value of a Poisson distribution is  $\lambda$ .
3.  $X \sim Pois(\lambda)$ , show that the variance of a Poisson distribution is  $\lambda$ .
4.  $X \sim N(\mu, \sigma^2)$ , show that the expected value is  $\mu$ .