

Binomial Probability and the Normal Distribution Revisited

CREDIT: The questions on this document were written by Erik Packard, PhD, Associate Professor of Mathematics at Colorado Mesa University.

- Problem 4
 - The number of accidents at a busy intersection in one month is not normally distributed, but it has a mean of 2.8 and a standard deviation of 2.1.
 - A) If 55 months are studied at random, then what is the probability the average number of accidents will exceed 3?
 - B) There is only a 1% chance the average of 55 months picked at random will exceed what number?
- Problem 9
 - Suppose a hidden camera at a residential intersection with a stop sign is put up and it is found that only 17% of cars actually stop completely at the stop sign.
 - A) What is the probability that exactly 2 cars will completely stop in a sample of 16 cars?
 - B) What is the probability that more than 2 cars will completely stop in a sample of 16 cars?
 - C) What is the mean number of cars that will completely stop in samples of size 120?
 - D) What is the standard deviation of the number of cars that will completely stop in samples of size 120?
 - E) What is the probability that 20 or less cars will completely stop in a sample of size 120?