

Practice Exam 3

- Two dice are tossed and the lower of the two numbers is recorded. Find the expected value of this experiment. [2.53](#)
- A container of lightbulbs has a 5% defective rate. What is the probability that at least 3 bulbs out of 30 randomly chosen bulbs are defective? [18.8%](#)
- A promoter is considering buying insurance for an outdoor concert in the case it rains. Insurance costs \$3,000 and pays \$30,000 if it rains. The promoter is expecting revenue of \$35,000 if it does not rain. What must the chance of rain be in order for the promoter to be ambivalent about buying insurance. [10%](#)
- What is the probability of success for a binomial random variable with 26 trials and an expected value of 4? [15.4%](#)
- The life in hours of two brands of lightbulbs are shown below. Which brand of lightbulb has the longer average life? Which brand of lightbulb has the more predictable lifetime? [Brand A.](#) [Brand B.](#)
Brand A: 121, 98, 61, 101, 90.
Brand B: 79, 82, 68, 110, 115.
- A random variable X has mean $\mu = 75$ and standard deviation $\sigma = 8$. Find the probability that X is between 63 and 87 using Chebychev's inequality. [The probability is at least 55.5%](#)
- The height of American men is normally distributed with mean $\mu = 70$ inches and standard deviation $\sigma = 2$ inches. Find the percentage of men who are more than 6' 6" tall. Find the percentage of men who are between 5' and 6' tall. [0%](#). [84.13%](#).
- Find the standard deviation σ of a normally distributed random variable X having mean $\mu = 10$, if $\Pr(X \leq 5) = .1056$. [4](#)
- Find the value of z for which $\Pr(Z \geq z) = .0668$ if Z is the standard normally distributed random variable with $\mu = 0$ and $\sigma = 1$. [1.50](#)
- An experiment consists of 20 binomial trials, each with probability 25% of success. Use an approximating normal curve with $\mu = np$ and $\sigma = \sqrt{npq}$ to approximate: exactly 5 successes, between 4 and 8 successes, and less than 9 successes. [19.74%](#). [73.33%](#). [95.99%](#).
- About 5% of American women are 6 feet or taller. Estimate the probability of finding more than 3 women taller than 6 feet in a group of 12 American women. [Less than 1%](#)