

Pre-calculus 11.3 Homework

Name _____ period _____ date _____ score _____

1. In a carnival game, a prize is hidden under one of five identical boxes. The game is reset after each attempt. You play the game 6 times.
 - a. What is the probability that you win exactly two times?

 - b. What is the probability that you win at most two times?

 - c. What is the probability that you win more than two times?

2. A hotel has three elevators. One of them is a freight elevator. When you press the button, one of the elevators randomly responds. You use the elevator seven times.
 - a. What is the probability that the freight elevator responds exactly four times?

 - b. What is the probability that the freight elevator responds less than four times?

 - c. What is the probability that the freight elevator responds at least four times?

3. During a stretch of 25 games between 2004 and 2005, the New England Patriots won 19 coin flips. What is the probability of winning at least 19 coin flips out of 25?

4. An archer has a 25% chance of hitting the bullseye on any given shot at a target.
 - a. What is the probability that the first bullseye happens on the third shot?

 - b. What is the probability that the first bullseye happens on or before the third shot?

 - c. What is the probability that it takes more than three shots to hit a bullseye?

5. A manufacturing process produces defective fuses approximately 3% of the time. Quality control tests the fuses in samples of 20.
- What is the probability that there will be no defective fuses in the sample?
 - What is the probability that there will be more than 3 defective fuses in the sample?
 - What is the probability that there will less than 2 defective fuses in the sample?
6. In backgammon, rolling doubles is lucky. The probability of rolling doubles on any given turn is $1/6$.
- What is the probability that your first doubles will occur on your 8th turn?
 - What is the probability that your first doubles will occur before your 8th turn?
 - What is the probability that your first doubles will occur after your 8th turn?
 - What is the probability that you will roll doubles exactly 3 times in 15 turns?
 - What is the probability that you will roll doubles 3 or more times in 15 turns?
 - What is the probability that you will roll doubles at most 3 times in 15 turns?
7. A person with tuberculosis is given a chest x-ray. Four TB x-ray specialists examine the x-ray independently. Each specialist can detect TB 88% of the time when it is present.
- What is the probability that exactly 3 of the specialists will detect the presence of TB?
 - What is the probability that all 4 of the specialists will detect the presence of TB?
 - What is the probability that at most 2 of the specialists will detect the presence of TB?
8. On a roulette wheel, there are 18 red slots, 18 black slots, and 2 green slots.
- What is the probability that the first time the ball lands on black happens on the 5th spin?
 - What is the probability that it takes more than 3 spins for the ball to land on black?
 - In 1943, the ball landed on red for 32 consecutive spins. What is the probability that it will take more than 32 spins for the ball to land on black?