
Due: Today

- (1) In how many different arrangements can 12 people sit in a circle?

- (2) Of the 55 students who responded to a survey question about ethnicity, 20 reported that have Irish ancestors, and 14 reported they have Italian ancestors. Seven students reported that they are of both Irish and Italian descent. If a student is selected at random, what is the probability that he or she is either Italian or Irish?

- (3) Find each of the probability that you roll two Fibonacci dice (1, 1, 2, 3, 5, 8) and get . . .
 - a. a 5 or 6:
 - b. a number greater than 9:
 - c. doubles:
 - d. a number divisible by 4:
 - e. an odd number:

- (4) Hospital records show that 15% of the patients suffering from a certain disease do not recover from it. A hospital has 8 patients with the disease. Construct the probability distribution for the number of those patients that will survive the disease.

- (5) The unemployment rate for Allegheny County was 4.9% in January 2018.
 - a. If 1000 county residents are selected at random, how many should be expected to be employed?
 - b. What is the probability that ten randomly selected county residents are all employed?
 - c. What is the probability that ten randomly selected county residents are all unemployed?
 - d. What is the probability that five of ten randomly selected county residents are all employed?
 - e. What is the probability that one of ten randomly selected county residents is employed?

- (6) The mean lifetime of a manufacturer's wristwatch is 25 months with standard deviation of 5 months. If this variable is distributed normally, for how many months should the manufacturer use for a guarantee if they expect to refund no more than 10% of the watches?

- (7) The number of times a mobile phone interrupts a college class with a ring or alert is a normally distributed variable with mean 2.13 and standard deviation 0.95. What is the probability a randomly selected college class will be interrupted at least once?