Statistics Exam II Review

Academic Skills Center

Spring 2019

1. According to an Opinion Dynamics Poll published in *USA Today* roughly 57% of U.S. men and 43% of U.S. women believe in extraterrestrial aliens. Of U.S. adults, roughly 48% are men, and 52% are women.
   1. Draw a probability tree that corresponds with the information above.
   2. What percentage of U.S. adults believe in such aliens?
   3. What percentage of U.S. adults that believe in such aliens are women?
2. At a movie festival, a team of judges is to pick the first, second, and third place winners from the 20 films entered. How many possibilities are there?
3. At a lottery, 100 tickets were sold and three equal prizes are to be given. How many possible outcomes are there?
4. The Television Bureau of Advertising, Inc, publishes information on color television ownership. The following is a probability distribution for the number of color TVs, *Y*, owned by a randomly selected household with annual income between $15,000 and $29,999.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *y* | 0 | 1 | 2 | 3 | 4 | 5 |
| *P(Y=y)* | .009 | .376 | .371 | .167 | .061 | .016 |

Find the following

1. P (Y > 1)
2. P (Y = 3)
3. P (Y 4)
4. P ( Y > 4 or Y 2)
5. Find and interpret the mean and standard deviation of this distribution.
6. According to the Centers for Disease Control and Prevention 16.5% of persons under the age of 65 had no insurance coverage. Suppose that 4 people under the age of 65 are randomly selected. What is the probability that:
   1. Exactly 3 of the 4 people will not have health insurance
   2. All 4 will have health insurance
   3. At least 2 will not have health insurance
   4. Find and interpret the mean and standard deviation of this distribution.
7. Determine the are under the standard normal curve that is
   1. to the right of 2.5
   2. to the left of 2
   3. in between -1.5 and .5
   4. outside the interval 0 to 2
8. As reported in *Runner’s World* magazine, the time of the finishers in the NYC 10-km run are normally distributed with mean 61 minutes standard deviation 9 minutes.
   1. Determine the percentage of finishers with times between 50 and 70 minutes.
   2. Determine the percentage of finishers with times less than 75 minutes.
9. In the article “America’s Health Checkup,” it is reported that 40% of U.S. adults get no exercise. If 250 U.S. adults are selected at random, approximate the probability that the number who get no exercise
   1. is exactly 40% of those sampled.
   2. exceeds 40%
   3. is fewer than 90