

Statistics Exam II
Review Academic Skills
Center Fall 2019

1. 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?

2. At a lottery, 100 tickets were sold, and each person buys one ticket. Three prizes are given. How many possible outcomes are there if?
 - A) All the prizes are equivalent?
 - B) There is a First, Second and Third prize?

3. 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 | 1766 | 2 | 3 | 4 | 5 |
| $P(Y=y)$ | .009 | .376 | .371 | .167 | .061 | .016 |

Find the following

- a. $P(Y > 1)$
 - b. $P(Y = 3)$
 - c. $P(Y \leq 4)$
 - d. $P(Y > 4 \text{ or } Y \leq 2)$
 - e. Find and interpret the mean and standard deviation of this distribution.
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4. 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:
 - a. Exactly 3 of the 4 people will not have health insurance
 - b. All 4 will have health insurance
 - c. At least 2 will not have health insurance
 - d. Find and interpret the mean and standard deviation of this distribution.

5. Determine the area under the standard normal curve that is

- e. to the right of 2.5
- f. to the left of 2
- g. in between -1.5 and .5
- h. outside the interval 0 to 2

6. As reported the mean annual salary of (public) classroom teachers is 49,000 assume a standard deviation of 9,200. Do the following for the variable "annual salary" of classroom teachers.

- A. Determine the sample distribution of the sample mean for sample size of 64
- B. What is the probability that the sampling error made in estimating the population mean of all classroom teachers by the mean salary of a sample of 64 classroom teachers will be at most \$1000

7. 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

- a. is exactly 40% of those sampled.
- b. exceeds 40%