Practice Test 5 AP Statistics Name:

**Directions:** *Work on these sheets.*

**1.**  Which of the following is (are) true?

 I. The sum of the probabilities in a probability distribution can be any number between 0 and 1.

 II. The probability of any outcome of a random phenomenon can be any number between 0 and 1.

 III. The probability that an event happens is equal to (1 – the probability that the event does not happen).

 (a) I and II only

 (b) I and III only

 (c) II and III only

 (d) I, II, and III

 (e) None of the above gives the complete set of true responses.

**2.** A spinner has 4 colors. The sample space is {blue, yellow, red, green}. Which of the following represents a legitimate assignment of probabilities for this sample space?

 (a) 0.2, 0.2, 0.2, 0.2

 (b) 0.4, 0.4, 0.4, 0.4

 (c) 0.3, 0.3, 0.3, 0.1

 (d) 0.6, 0.1, 0.1, –0.2

**3.** People with type O-negative blood are universal donors. That is, any patient can receive a transfusion of O-negative blood. Only 7.2% of the American population has O-negative blood. What is the probability that a person does not have O-negative?

**4.** If a football fan is chosen at random, the chances of him/her cheering for a specific team are shown in the table below.

 Team Falcons Saints Cowboys Steelers Bills

 Probability 0.4 0.3 0.2 0.1

1. What is the probability of randomly selecting a Bills fan?
2. What is the probability the fan will cheer for the Falcons or the Saints?

**5.** This year the Falcons have won 67% of their games. What is the probability that they win their next three games, assuming the outcome of each game is independent?

*Government data give the following counts of violent deaths in a recent year among people 20 to 24 years of age by sex and cause of death:*

|  |  |  |
| --- | --- | --- |
|  | Female | Male |
| Accidents | 1818 | 6457 |
| Homicide | 457 | 2870 |
| Suicide | 345 | 2152 |

*Questions 6 to 9 are based on this table.*

**6.** What is the probability that the victim of a violent death was male?

**7.** What is the probability that the victim was male, given that the death was accidental?

**8.** What is the probability a death was homicide, given the victim was female?

**9.** Are the events “being male” and “dying from accident” independent? Explain why or why not.

**10.** Suppose that for a group of consumers, the probability of eating pretzels is 0.75 and that the probability of drinking Coke is 0.65. Further suppose that the probability of eating pretzels *and* drinking Coke is 0.55.

 **a)** Draw a Venn diagram with the probabilities filled in

1. What is the probability that a consumer neither eats pretzels or drinks Coke?
2. What is the probability a consumer only drinks Coke?

11. Suppose your school is in the midst of a flu epidemic. The probability that a randomly selected

student has the flu is 0.35, and the probability that a student who has the flu also has a high fever is 0.90. But there are other illnesses making the rounds, and the probability that a student who doesn’t have the flu does have a high fever (as a result of some other ailment) is 0.12. Suppose a student walks into the nurse’s office with a high fever. What is the probability that she has the flu given that she has a high fever? **You must use draw a tree diagram**

 12. A frog is sitting exactly in the middle of a board that is five feet long.

Every ten seconds he jumps one foot either left or right, at random. You want to use simulation to estimate the probability that he jumps off the board in sixty seconds or less. (For example, if he jumps LLRLRL, he is still on the board, on the left-most square. If he jumps LLRLL, he has jumped off the board in fifty seconds.).

 Use the random number table below to carry out 8 repetitions of the frog’s jumps and give an estimate of the probability from those repetitions.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **126** | 96927 | 19931 | 36089 | 74192 | 77567 | 88741 | 48409 | 41903 |
| **127** | 43909 | 99477 | 25330 | 64359 | 40085 | 16925 | 85117 | 36071 |
| **128** | 15689 | 14227 | 06565 | 14374 | 13352 | 49367 | 81982 | 87209 |
| **129** | 36759 | 58984 | 68288 | 22913 | 18638 | 54303 | 00795 | 08727 |
| **130** | 69051 | 64817 | 87174 | 09517 | 84534 | 06489 | 87201 | 97245 |