Time Frame: 50 minutes

Subject Matter: Empirical Probability

**TELL ME**

Anticipatory Set:

In a college class of 200 graduating seniors, 50 have jobs waiting, 20 are going to medical school, 30 are going to law school, and 80 are going to various other kinds of graduate schools. Select one graduate at random.

1. What is the probability that the student is going to graduate school?
2. What is the probability that the student is going to medical school?
3. What is the probability that the student will have to start paying back his deferred student loans after 6 months (i.e., does not continue in school)?

Objective: TSWBAT find the probability of an event using empirical probability.

Standards: DA – 1.1, 1.2, & 1.5

Materials: Textbook, O.H.P. & Transparencies

**SHOW ME**

Presentation of Information:

**Example 1**: The judicial committee at a particular college consists of 2 administrators, 4 faculty members, 4 seniors, 4 juniors, 2 sophomores, and 2 freshmen. Suppose one committee member is selected at random, find the following probabilities.

1. That a student is selected.
2. That a senior or a junior is selected.
3. That a nonstudent is selected.

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**LET ME TRY**

1. In a recent year, of the 1,184,000 bachelor’s degrees conferred, 233,000 were in the field of business, 125,000 were in the social sciences, and 106,000 were in education. If one degree is selected in random, find the following probabilities.
   1. That the degree was awarded in education.
   2. That the degree was not awarded in business.
2. In the game of craps using two dice, a person wins on the first roll if a sum of 7 or an 11 is rolled. Find the probability of winning on the first roll.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Die 2 | | | | | |
| Die 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |

1. In the game of craps using two dice, a player loses on the roll if a sum of 2, 3 or 12 is tossed on the first roll. Find the probability of losing on the first roll. (Use the table on #2)
2. For a specific year a total of 2541 postal workers were bitten by dogs. The top 6 cities for crunching canines were as follows.

Houston 49 Chicago 37

Miami 35 Los Angeles 32

Brooklyn 22 Cleveland 20

If one bitten postal worker is selected in random,

1. What is the probability that he was bitten in Houston, Chicago, or Los Angeles?
2. What is the probability that he was bitten in some other cities?

Homework

Roll two dice and multiply the numbers together.

1. Write out the sample space.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Die 2 | | | | | |
| Die 1 | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |

1. What is the probability that the product is a multiple of 6?
2. What is the probability that the product is less than 10?