Time Frame: 50 minutes

Subject Matter: The Addition Rules of Probability

**TELL ME**

Anticipatory Set:

At a particular school with 200 male students, 58 play football, 40 play basketball, and 8 play both. What is the probability that a randomly selected male student plays neither sport?

Objective: TSWBAT find the probability of an event using the addition rules for probability.

Standards: DA – 1.1, 1.2, & 1.5

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

**SHOW ME**

Presentation of Information:

Definition of Terms:

* **Addition Rule # 1**

When two events A and B are mutually exclusive, the probability that A **or** B will occur is

***P(A or B) = P(A) + P(B)***

* **Addition Rule # 2**

When two events A and B are not mutually exclusive, then

***P(A or B) = P(A) + P(B) – P(A and B)***

**Example 1:** The Bargain Auto Mall has these cars in stock.

|  |  |  |  |
| --- | --- | --- | --- |
|  | SUV | Compact | Mid-sized |
| Foreign | 20 | 50 | 20 |
| Domestic | 65 | 100 | 45 |

If a car is selected at random, find the probability that it is

1. Domestic
2. Foreign and Mid-sized
3. Domestic or an SUV

**Example 2:** The number of endangered species for several groups are listed here.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Mammals | Birds | Reptiles | Amphibians | Total |
| United States | 63 | 78 | 14 | 10 |   |
| Foreign | 251 | 175 | 64 | 8 |   |
| Total |   |   |   |   |   |

 If one endangered species is selected at random, find the probability that it is

1. Found in the U.S.A. and is a bird.
2. Foreign or a mammal.
3. Warm-blooded.

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

**LET ME TRY**

1. A grocery store employs cashiers, stock clerks, and deli personnel. The distribution of employees according to marital status is shown here.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Marital Status | Cashiers | Stock Clerks | Deli Personnel | Total |
| Married | 8 | 12 | 3 |   |
| Not married | 5 | 15 | 2 |   |
| Total |   |   |   |   |

 If an employee is selected at random, find these probabilities:

* 1. The employee is a stock clerk or married.
	2. The employee is not married.
	3. The employee is a cashier or is not married.
1. In a certain geographic region, newspapers are classified as being published daily morning, daily evening, and weekly. Some have comics section and other do not. The distribution is shown here.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Have comics section | Morning | Evening | Weekly | Total |
| Yes | 2 | 3 | 1 |   |
| No | 3 | 4 | 2 |   |
| Total |   |   |   |   |

 If a newspaper is selected at random, find these probabilities.

* 1. The newspaper is a weekly publication.
	2. The newspaper is a daily morning publication or has comics.
	3. The newspaper is published weekly or does not have comics.
1. Three cable channels (6, 8, and 10) have quiz shows, comedies, and dramas. The number of each is shown here.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of Show | Channel 6 | Channel 8 | Channel 10 | Total |
| Quiz Show | 5 | 2 | 1 |   |
| Comedy | 3 | 2 | 8 |   |
| Drama | 4 | 4 | 2 |   |
| Total |   |   |   |   |

If a show is selected at random, find these probabilities.

* 1. The show is a quiz show or it is shown on channel 8.
	2. The show is a drama or a comedy.
	3. The show is shown in channel 10 or it is a drama.

Homework:

Prepare for a Test