Time Frame: 50 minutes

Subject Matter: Probability and Counting Rules TELL ME

Anticipatory Set:

A committee of 4 people is to be formed from 6 doctors and 8 dentists. Find the probability that the committee will consist of

1. All dentists
2. 2 dentists and 2 doctors
3. All doctors

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

Standards: DA – 5.2 Use counting techniques to determine the number of possible outcomes for an event.

Materials: PowerPoint Presentation and Worksheets

SHOW ME

Presentation of Information:

In pair, the students will be asked to solve the following problems.

Le Me Try (Study Guide)

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

1. The probability that a person owns a car is 0.80, that a person owns a boat is 0.30, and that a person owns both a car and a boat is 0.12. Find the probability that a person owns either a boat or a car.
2. There is a 0.39 probability that John will purchase a new car, 0.73 probability that Mary will purchase a new car, and 0.36 probability that both will purchase a new car. Find the probability that neither will purchase a new car.
3. A Gallup Poll found that 78% of Americans worry about the quality and healthfulness of their diet. If 5 people are selected at random, find the probability that all 5 worry about the quality and healthfulness of their diet.
4. Of Americans using library services, 67% borrow books. If 5 patrons are chosen at random, what is the probability that all borrowed books? That none borrowed books?
5. Three cards are drawn from an ordinary deck of cards without replacement. Find the probability of getting
6. All black cards.
7. All spades.
8. All queen.
9. A coin is tossed and a card is drawn from a deck. Find the probability of getting
10. A head and a 6.
11. A tail and a red card.
12. A head and a club.
13. A box of candy contains 6 chocolate-covered cherries, 3 peppermints, 2 caramels, and 2 strawberry creams. If a piece of candy is selected, find the probability of getting a caramel or a peppermint.
14. A manufacturing company has three factories: X, Y, and Z. the daily output is shown here

|  |  |  |  |
| --- | --- | --- | --- |
| Product | Factory X | Factory Y | Factory Z |
| TVsStereos | 186 | 3220 | 1513 |

If one item is selected at random, find these probabilities.

1. It was manufactured at factory X or is a stereo.
2. It was manufactured at factory Y or factory Z.
3. It is a TV or was manufactured at factory Z.
4. A vaccine has a 90% probability of being effective in preventing a certain disease. The probability of getting the disease if a person is not vaccinated is 50%. In a certain geographic region, 25% of the people get vaccinated. If a person is selected at random, find the probability that he or she will contract the disease.
5. A manufacturer makes three models of a television set, models X, Y, and Z. A store sells 40% of model X sets, 40 % of model Y sets, and 20% of model Z sets. Of model X sets, 3% have stereo sound, of model Y sets, 7% have stereo sound, and of model Z sets, 9% have stereo sound. If a set is sold at random, find the probability that it has a stereo sound.