100

In a large city, 82% of residents own a cell phone. Suppose that we randomly select three city residents. What is the probability that at least one of the three residents does NOT own a cell phone?

Wrong - 100

200

In a statistics class there are 18 juniors and 10 seniors: 6 of the seniors are females, and 12 of the juniors are males. If a student is selected at random, find the probability of selecting a students that is not a junior male.

Wrong - 200
Given the following probabilities...

P(resident reads New York Times) = 0.20
P(resident reads USA Today) = 0.35
P(resident reads New York Times and USA Today) = 0.05

Find \( P(\text{resident does not read USA Today nor New York Times}) \).
The probability that a new microwave oven will stop working in less than 2 years is 0.05. The probability that a new microwave oven is damaged during delivery and stops working in less than 2 years is 0.04. The probability that a new microwave oven is damaged during delivery is 0.10. Given that a new microwave oven is damaged during delivery, what is the probability that it stops working in less than 2 years?

Below is a two-way table that describes responses of 120 subjects to a survey in which they were asked, "Do you exercise for at least 30 minutes four or more times per week?" and "What kind of vehicle do you drive?"

<table>
<thead>
<tr>
<th>Car type</th>
<th>Truck</th>
<th>SUV</th>
<th>Sedan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>12</td>
<td>15</td>
<td>25</td>
<td>52</td>
</tr>
<tr>
<td>No</td>
<td>24</td>
<td>24</td>
<td>20</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>39</td>
<td>45</td>
<td>120</td>
</tr>
</tbody>
</table>

1st: List two mutually exclusive events for this chance process.

2nd: What is the probability that the person selected drives a truck or exercises four or more times per week.
Consolidated Builders has bid on two large construction contracts. The company president believes that the probability of winning the first contract (event A) is 0.6, that the probability of winning a second (event B) is 0.3, and that the probability of winning both jobs is 0.1.

Are events A and B independent? Explain.

Are events A and B mutually exclusive? Explain.

During World War II, the British found that the probability that a bomber is lost through enemy action on a mission over occupied Europe was 0.05. Assuming that missions are independent, find the probability that a bomber returned safely from 20 missions.
An experiment has three mutually exclusive outcomes, A, B, and C. If \( P(A) = 0.12 \), \( P(B) = 0.61 \), and \( P(C) = 0.27 \), which of the following must be true?

I. A and C are independent  
II. \( P(A \text{ and } B) = 0 \)  
III. \( P(B \text{ or } C) = P(B) + P(C) \)

Officials at Dipstick College are interested in the relationship between participation in interscholastic sports and graduation rate. The following table summarizes the probabilities of several events when a male Dipstick student is randomly selected.

<table>
<thead>
<tr>
<th>Event</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student participates in sports</td>
<td>0.20</td>
</tr>
<tr>
<td>Student participates in sports and graduates</td>
<td>0.18</td>
</tr>
<tr>
<td>Student graduates, given no participation in sports</td>
<td>0.82</td>
</tr>
</tbody>
</table>

Find the probability that a student graduates, given that he participates in sports.

Find the probability that the individual does not participate in sports, given that he graduates.
The table below is a probability model for the number of cars in a randomly-selected household in the United States. What is the probability that a randomly-selected household has at least 2 cars?

<table>
<thead>
<tr>
<th>Number of cars</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability</td>
<td>0.07</td>
<td>0.19</td>
<td>0.47</td>
<td>?</td>
<td>0.06</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Consolidated Builders has bid on two large construction contracts. The company president believes that the probability of winning the first contract (event A) is 0.6, that the probability of winning a second (event B) is 0.3, and that the probability of winning both jobs is 0.1.

Write each of the following events in terms of A, B, A\(^C\), and B\(^C\), and use the information above to calculate the probability of each.

a. Consolidated wins at least one of the jobs

b. Consolidated wins the first job but not the second.

c. Consolidated wins the second job given they won the first job
A four-sided die has faces with 1, 2, 3, and 4 spots.

Use a tree diagram to display the sample space when the die is rolled twice.

Find the probability of each possible two-dice sum and organize them in a table (aka probability distribution).

For a roll of a fair die, each of the outcomes 1, 2, 3, 4, 5, or 6 is equally likely. A red die and a green die are rolled simultaneously, and the difference of the outcomes (red - green) is computed. This is repeated for a total of 500 rolls of the pair of dice. Which of the following graphs best represents the most reasonable distribution of the differences?
In Monopoly, to get out of jail you must roll doubles. Find \( P(\text{doubles}) \).

Match the probabilities with each statement.

Probabilities: \( 0 \quad 0.01 \quad 0.3 \quad 0.6 \quad 0.99 \quad 1 \)

- a. This outcome is impossible. It can never occur.
- b. This outcome is certain. It will occur on every trial.
- c. This outcome is very unlikely, but it will occur once in a while in a long sequence of trials.
- d. This outcome will occur more often than not.
In your top dresser drawer are 6 blue socks and 10 gray socks, unpaired and mixed up. One dark morning you pull two socks from the drawer (without replacement, of course!). What is the probability that the two socks match?

A coin is tossed 6 times and the side (heads or tails) is recorded. Which of the following outcomes is more probable?

HTHTTH  TTTHHH
The probability of a randomly selected person being left-handed is about 1/7. Which one of the following best describes what this means?

A. If a very large number of people are selected, the proportion of left-handed people will be very close to 1/7.

B. For every 700,000 people selected, 100,000 will be left-handed.

C. If we get 4 left-handed people in 4 consecutive randomly selections, the probability that the next person is left-handed is substantially lower than 1/7.

Suppose that 30% of subscribers to a cable television service watch the shopping channel at least once a week. You are to design a simulation to estimate the probability that none of five randomly selected subscribers watches the shopping channel at least once a week. Which of the following assignments of the digits 0 through 9 would be appropriate for modeling an individual subscriber's behavior in this simulation?

A. Assign "0, 1, 2" as watching the shopping channel at least once a week and "3, 4, 5, 6, 7, 8, and 9" as not watching.

B. Assign "0, 1, 2, 3" as watching the shopping channel at least once a week and "4, 5, 6, 7, 8, and 9" as not watching.

C. Assign "1, 2, 3, 4, 5" as watching the shopping channel at least once a week and "6, 7, 8, 9" as not watching.

D. Assign "0" as watching the shopping channel at least once a week and "1, 2, 3, 4, 5" as not watching; ignore digits "6, 7, 8, and 9".

E. Assign "3" as watching the shopping channel at least once a week and "0, 1, 2, 4, 5, 6, 7, 8, and 9" as not watching.