LESSON 10-5 Practice B

Experimental Probability

Identify the sample space and the outcome shown for each experiment.

1. spinning a spinner

   Sample space: \{1, 2, 3, 4, 5\}

2. tossing two coins

   Sample space: \{HH, HT, TH, TT\}

   Outcome: \{HT\}

Write impossible, unlikely, as likely as not, likely, or certain to describe each event.

3. The mail was delivered before noon on 4 of the last 5 days. The mail will be delivered before noon today.
   
   Likely

4. Sean rolls a number cube and gets an even number.
   
   Likely

   
   Impossible

An experiment consists of rolling a standard number cube. Use the results in the table to find the experimental probability of each event.

6. rolling a 1

   \(\frac{1}{6}\)

7. rolling a 5

   \(\frac{1}{5}\)

8. not rolling a 3

   \(\frac{9}{10}\)

9. not rolling a number less than 5

   \(\frac{3}{10}\)

10. A tire manufacturer checks 80 tires and finds 6 of them to be defective.

    a. What is the experimental probability that a tire chosen at random will be defective?

       7.5%

    b. The factory makes 200 tires. Predict the number of tires that are likely to be defective.

       15

11. A safety commission tested 1500 electric scooters and found that 15 of them had defective handles.

    a. What is the experimental probability that a scooter will have a defective handle?

       1%

    b. The factory makes 40,000 scooters. Predict the number of scooters that are likely to have defective handles.

       400
## Practice A
### Experimental Probability
Identify the sample space and the outcomes for each experiment.

1. rolling a number cube
   - sample space: 1, 2, 3, 4, 5, 6
   - outcome (5)

2. spinning a spinner
   - sample space: A, B, C, D
   - outcome (A)

Write impossible, unlikely, as likely as not, likely, or certain to describe each event.

3. Selecting a green marble from a bag with white marbles
   - impossible

4. Choosing a vowel from the letters A, M, O, F, P, I
   - as likely as not

5. Correctly guessing a number from 1 to 3 when you have 2 tries
   - likely

An experiment consists of randomly choosing a colored card from a box. Use the results in the table to find the experimental probability of each event.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>red</td>
<td>7</td>
</tr>
<tr>
<td>yellow</td>
<td>12</td>
</tr>
<tr>
<td>orange</td>
<td>8</td>
</tr>
<tr>
<td>white</td>
<td>13</td>
</tr>
</tbody>
</table>

6. choosing a yellow card
   - 12

7. choosing an orange card
   - 8

8. not choosing a white card
   - 33

9. not choosing a red card
   - 40

10. A cook inspects 20 hamburgers and finds 3 of them are missing a pickle.
    a. What is the experimental probability that a hamburger will be missing a pickle?
       - 15%
    b. The restaurant makes 300 hamburgers. Predict the number of hamburgers that are likely to be missing a pickle.
       - 45

11. An inspector checks 150 children with bike helmets and found that 21 children are not wearing them properly.
    a. What is the experimental probability that a child will not be wearing a bike helmet properly?
       - 14%
    b. The inspector checks 500 more children with bike helmets. Predict the number of these children that will not be wearing their bike helmet properly.
       - 70

## Practice B
### Experimental Probability
Identify the sample space and the outcomes for each experiment.

1. spinning a spinner
   - sample space: 1, 2, 3, 4, 5
   - outcome (2)

2. tossing two coins
   - sample space: HH, HT, TH, TT
   - outcome (HT)

Write impossible, unlikely, as likely as not, likely, or certain to describe each event.

3. The mail was delivered before noon on 4 of the last 5 days.
   - as likely as not

4. Sean rolls a number cube and gets an even number.
   - likely

   - impossible

An experiment consists of rolling a standard number cube. Use the results in the table to find the experimental probability of each event.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

6. rolling a 1
   - 6

7. rolling a 5
   - 9

8. not rolling a 3
   - 10

9. not rolling a number less than 5
   - 6

10. A tire manufacturer checks 80 tires and finds 8 of them to be defective.
    a. What is the experimental probability that a tire chosen at random will be defective?
       - 7.5%
    b. The factory makes 200 tires. Predict the number of tires that are likely to be defective.
       - 15

11. A safety commission tested 1500 electric scooters and found that 10 of them had defective handles.
    a. What is the experimental probability that a scooter will have a defective handle?
       - 1%
    b. The factory makes 40,000 scooters. Predict the number of scooters that are likely to have defective handles.
       - 400

## Practice C
### Experimental Probability
Identify the sample space and the outcomes for each experiment.

1. rolling a die and spinning the spinner
   - sample space: A, B, C, D
   - outcome (A)

2. tossing three coins
   - outcome (A)

Describe the likelihood of each event.

3. Doug has already flipped a coin 9 times and it lands heads each time. Doug flips a coin the tenth time and it lands heads.
   - unlikely

4. Shannon rolls a 17 on a number cube that shows the first six prime numbers.
   - as likely as not

5. Three people in a class of 20 have the same birthday.
   - impossible

An experiment consists of spinning a spinner and tossing a coin. Use the results in the table to find the experimental probability of each event.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red, H</td>
<td>3</td>
</tr>
<tr>
<td>Blue, H</td>
<td>5</td>
</tr>
<tr>
<td>Red, T</td>
<td>4</td>
</tr>
<tr>
<td>Blue, T</td>
<td>7</td>
</tr>
<tr>
<td>Yellow, T</td>
<td>2</td>
</tr>
</tbody>
</table>

6. spinning red and tossing tails
   - 5

7. spinning blue and tossing heads or tails
   - 15

8. not tossing heads
   - 15

9. A computer repair person tried to shut down a program 80 times and found it closed properly 55 times.
    a. What is the experimental probability that the program will close properly?
       - 68.75%
    b. An analyst closes the program 32 times. Predict the number of times the program will close properly.
       - 22

10. A teacher tested 80 calculators and found 5 not working.
    a. What is the experimental probability that a calculator does not work?
       - 6.25%
    b. The classroom has 32 calculators. Predict the number of calculators that will not work.
       - 2

## Reteach
### Experimental Probability
An experiment is an activity involving chance. The sample space of an experiment is the set of all possible outcomes.

Identify the sample space for tossing one coin and rolling one number cube.

List each possible number with heads and then any possible number with tails.

<table>
<thead>
<tr>
<th>Number of Times</th>
<th>Event Occurs</th>
<th>Number of Trials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Red</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Green</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>White</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Blue</td>
<td>13</td>
</tr>
</tbody>
</table>

Probability is the measure of how likely an event is to occur. You can estimate the probability of an event by performing an experiment. The more trials you perform, the more accurate the estimate will be.

The experimental probability = number of times the event occurs / number of trials.

An experiment consists of randomly selecting marbles from a bag. Use the results in the table to find the experimental probability of each event.

<table>
<thead>
<tr>
<th>marble</th>
<th>probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>8/25</td>
</tr>
<tr>
<td>White</td>
<td>10/25</td>
</tr>
</tbody>
</table>

Identify the sample space for each experiment.

1. rolling a 6 sided number cube
   - sample space: 1, 2, 3, 4, 5, 6

2. spinning a spinner labeled A – E
   - sample space: A, B, C, D, E

<table>
<thead>
<tr>
<th>marble</th>
<th>probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>6</td>
</tr>
<tr>
<td>Green</td>
<td>4</td>
</tr>
<tr>
<td>White</td>
<td>15</td>
</tr>
<tr>
<td>Blue</td>
<td>8</td>
</tr>
<tr>
<td>Black</td>
<td>9</td>
</tr>
<tr>
<td>Red</td>
<td>14</td>
</tr>
<tr>
<td>Green</td>
<td>15</td>
</tr>
</tbody>
</table>

An experiment consists of selecting letters from a bag. Use the results in the table to find the experimental probability of each event.

<table>
<thead>
<tr>
<th>letter</th>
<th>probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>6</td>
</tr>
<tr>
<td>Green</td>
<td>4</td>
</tr>
<tr>
<td>White</td>
<td>15</td>
</tr>
<tr>
<td>Blue</td>
<td>8</td>
</tr>
<tr>
<td>Black</td>
<td>9</td>
</tr>
<tr>
<td>Red</td>
<td>14</td>
</tr>
<tr>
<td>Green</td>
<td>15</td>
</tr>
</tbody>
</table>

Identify the sample space for each experiment.