# Introduction to Probability
## Use What You've Learned

The following problems require you to make and use a spinner like the one shown in the video. If you completed *Problems from the Video*, use the data you already collected and skip to problem 2.

1. Determine the probability of spinning each number on the spinner by conducting an experiment.
   a. Using sturdy paper, print the spinner shown on page 3.
   b. Insert a brad through a paperclip and then through the center of the spinner. Adjust the brad in order to make the paperclip spin freely.
   c. Spin the paperclip 100 times and record the results in the table below by making a tally mark for each spin.
   d. After spinning 100 times, count and record the total number of spins for each number.
   e. Determine the experimental probability of each event and record it in the table.

| Event | Spins out of 100 (tally) | Spins out of 100 (total) | Experimental Probability |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |

2. The following table shows the results of spinning the spinner 100 times as seen in the video. Compare your results to the video results. Are they the same? Does this surprise you? Explain your reasoning.

| Event | Spins out of 100 (total) | Experimental Probability |
|---|---|---|
| 1 | 36 | $\frac{36}{100}$ or 36% |
| 2 | 19 | $\frac{19}{100}$ or 19% |
| 3 | 23 | $\frac{23}{100}$ or 23% |
| 4 | 8 | $\frac{8}{100}$ or 8% |
| 5 | 14 | $\frac{14}{100}$ or 14% |

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3. The following table shows the theoretical probability of spinning each number. Explain how to determine each of these theoretical probabilities.

| Event | Theoretical Probability |
|---|---|
| 1 | $\frac{4}{10}$ or 40% |
| 2 | $\frac{2}{10}$ or 20% |
| 3 | $\frac{2}{10}$ or 20% |
| 4 | $\frac{1}{10}$ or 10% |
| 5 | $\frac{1}{10}$ or 10% |


Candy, Hank, and Tom are playing Probability Path. Each of their markers is shown on the game board below. Determine the theoretical probability of each of the following events.

4. What is the probability that Candy will lose her turn on her next spin?

5. What is the probability that Hank will lose his turn on his next spin?

6. What is the probability that Hank will **not** win on his next spin?

7. What is the probability that Tom will **not** have to go back 10 spaces?

8. What is the probability that Tom will win on his next turn?


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