

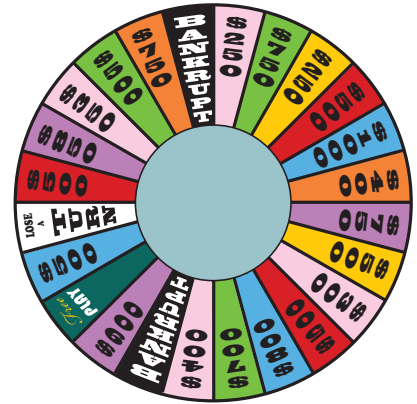
# Chapter 10 Exercises

1. Ali is interested in the chance of someone buying vanilla ice cream, so he counts how many people order vanilla ice cream during two hours at a local ice cream shop. Determine whether the probability is experimental or classical.

2. Identify the sample space for Mrs. Okeela spinning the wheel once.

3. Describe how you would create the sample space for spinning the wheel twice.

4. Find the classical probability of landing on
  - a. \$300
  - b. Bankrupt
  - c. \$500
  - d. A tropical vacation



5. Mrs. Okeela was an avid viewer who kept detailed records of the contestants' spins. From her data during the last season, of the 1237 spins she recorded, "Bankrupt" came up 150 times. Find the empirical probability of landing on Bankrupt from Mrs. Okeela's data. Does it match up with what you would expect? Explain your answer.

6. Dr. Gladden was interested in studying whether gender affected students' preferred social media outlet. A random sample of students was selected from a sociology class and asked to choose their top social media site out of Facebook, Twitter, or Pinterest. Their social media choice, gender, and education level (freshman, sophomore, junior, or senior) were recorded.
  - a. Find the sample space for the possible outcomes of the survey using a tree diagram.
  - b. Dr. Gladden decides to add Instagram and Tumblr to the choices for preferred social media sites. She also decides to include high school students as an additional education level. Use the Fundamental Counting Principle to establish how many possible outcomes are now in the sample space.
  - c. The students in the survey are asked to rank their top two social media sites from the five possibilities. How many ways are there for students to rank their top two favorites?

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7. Mrs. Darcy is asked to create a 5-digit pin code for an account and decides to use the digits in her anniversary, 1/28/13. How many different codes can she create?





32. On a roulette wheel, the slots are numbered 1 through 36, 0, and 00 for a total of 38 slots. Assume you bet on a single slot. The payout for landing on a single slot is 35 to 1. If a chip is worth \$5, what is the expected value for a player that plays the number 12 repeatedly?
33. In a raffle, a ticket costs \$50. If there are 5000 tickets sold in the raffle and the payout is \$10,000, what is the expected value of purchasing one ticket?
34. In a lottery, 5% of tickets win \$100, 1% of tickets win \$500, 0.1% of tickets win \$1000, and the rest do not win anything. Find the average winnings per ticket for this lottery.
35. A weather forecast gives the following probabilities for the number of rainy days  $x_i$  on the next week.

$x_i$	$P(x_i)$
0	0.002
1	0.017
2	0.077
3	0.194
4	0.290
5	0.261
6	0.131
7	0.028

Find the average number of rainy days the forecast predicts.