Assignment

Write

Define each term in your own words.

1. experimental probability
2. theoretical probability

Remember

The percent error describes how far off the experimental probability is from the theoretical probability.

The percent error is the ratio $\frac{P_E - P_T}{P_T} \cdot 100$.

Practice

1. Suppose the probabilities for the letters on a spinner are known to be:

   $P(\text{A}) = \frac{1}{4}$ $P(\text{B}) = \frac{1}{3}$ $P(\text{C}) = \frac{5}{12}$

   Predict the number of times you would land on each letter if you were to spin the spinner the number of times given.

   a. You spin the spinner 12 times.

   $P(\text{A})$: $P(\text{B})$: $P(\text{C})$:

   b. You spin the spinner 96 times.

   $P(\text{A})$: $P(\text{B})$: $P(\text{C})$:

   c. You spin the spinner 6000 times.

   $P(\text{A})$: $P(\text{B})$: $P(\text{C})$:

2. A six-sided number cube was rolled 30 times. Use the results listed in the table to answer each question.

   a. What is the theoretical probability of rolling a number less than 4?
   b. What is the experimental probability of rolling a number less than 4?
   c. What is the percent error for P(less than 4)?
   d. What is the theoretical probability of rolling a 2?
   e. What is the experimental probability of rolling a 2?
   f. What is the percent error for $P(2)$?
   g. How might you adjust the experiment to decrease the percent error?

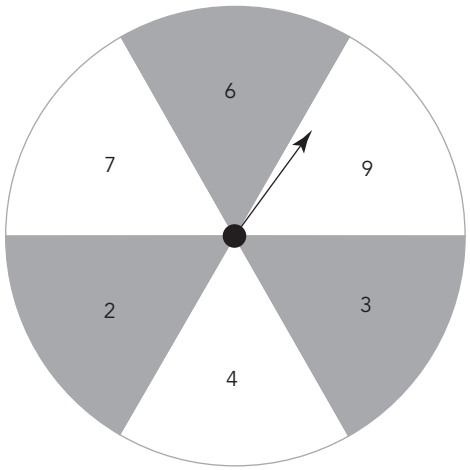
Outcome	Tally
1	𝍸 |||
2	||
3	𝍸 |||
4	|||
5	|||
6	𝍸

Stretch

Consider the Toss the Cup game. Suppose that the area of a base of the cup is 3.14 square inches, and the area of the other base is 7.065 square inches. From base to base the height of the cup is 5.5 inches. Determine the surface area of the side of the cup and use the three areas to determine the probability of landing on the side or one of the bases, assuming the shape of the cup doesn't matter.

Review

1. Charlie got a new board game that came with the spinner shown.



   a. Complete the probability model for using this spinner.

Outcome	2	3	4	6	7	9
Probability						

   b. What is the sum of the probabilities in the probability model?

   c. What is the probability that Charlie spins the spinner and gets an even number?

2. Zoey is researching her smartphone data plan. She currently gets 2 gigabytes of data per month. She looks at her past usage and notices that she uses an average of 0.04 gigabytes of data per day.

   a. Write an equation to represent the relationship between the number of days and the amount of data Zoey has left for the month.

   b. Does she have enough data in her monthly plan for her average usage? Should she change plans?

3. Use long division to convert each fraction to a decimal. Show all your work. Label each decimal as *terminating* or *non-terminating*.

   a. $\frac{5}{6}$ b. $\frac{15}{16}$