Module 20 Solving Problems Using Probability,
Statistics, and Discrete Math
Lesson 2 Solving Basic Probability Problems

additional practice

WOW! soda has introduced a new campaign to sell more bottles of soda. Each time a person buys a bottle, they have a chance to win a free soda.

1. Kendal bought 40 bottles of soda in one month and won only one time. Using Kendal's experience, what is the experimental probability of winning?

   $\dfrac{1}{40}$

2. Sarah bought 12 bottles of soda and won twice. Using Sarah's experience, what is the experimental probability of winning?

   $\dfrac{1}{6}$

3. The manufacturer of WOW! soda bottled 1,000,000 bottles of the special soda and placed winning caps on 10,000 of the bottles. Use this information to determine the probability of winning.

   $\dfrac{1}{100}$

4. Was experimental or theoretical probability used to calculate problem three?

   Theoretical

5. If 200 bottles of soda were opened, how many times would someone expect to win, based on the theoretical probability of winning?

   Two

Randal bought a box of 25 assorted chocolate candies for his mom. The box contained four plain chocolates, seven pecan chocolates, five caramel chocolates, five cherry chocolates, one raspberry chocolate, and three coconut chocolates. One candy is chosen randomly from the box. Find each probability below.

6. P(plain)

   $\dfrac{4}{25}$

7. P(cherry)

   $\dfrac{1}{5}$

8. P(not caramel)

   $\dfrac{4}{5}$

9. P(cherry or pecan)

   $\dfrac{12}{25}$

10. P(raspberry, coconut, or plain)

$\dfrac{8}{25}$

11. In a second box of 32 chocolate candies, P(cherry) $= \frac{5}{32}$. What is P(not cherry)?

$\dfrac{27}{32}$

12. If the first box described above and the second box in Question 11 are combined, what is P(cherry)?

$\dfrac{10}{57}$

A total of 26 cards are face down on a table. Each card represents a different letter of the alphabet. One card will be selected at random. (Assume that "Y" is a consonant and not a vowel.) Find each probability below.

13. P(B)

$\dfrac{1}{26}$

14. P(Q)

$\dfrac{1}{26}$

15. P(a letter that is in the word "MATH")

$\dfrac{2}{13}$

16. P(consonant)

$\dfrac{21}{26}$

17. P(not a vowel)

$\dfrac{21}{26}$

18. P(vowel or consonant)

1

19. P(not before "T")

$\dfrac{7}{26}$

20. P(Q, X, or Z)

$\dfrac{3}{26}$

One day from a non-leap year is randomly selected as Comic Book Appreciation Day by the Comic Book Collectors Society. Find each probability below.

21. P(June 30)

$\dfrac{1}{365}$

22. P(April 32)

0

23. P(A day in February)

$\dfrac{28}{365}$

24. P(Not a day in December)

$\dfrac{334}{365}$

25. P(The day which is the same as your birthday)

$\dfrac{1}{365}$

26. P(The day which is the first or last day of a month)

$\dfrac{24}{365}$