Practice

Form G

Compound Probability

For Exercises 1–3, determine whether the events are *independent* or *dependent*.

1. You roll a 2 on a number cube and spin a 3 on a spinner. **independent**

2. You choose a King from a deck of cards and get heads in a coin toss. **independent**

3. You roll a number cube and get a 6, and roll again if the first roll is a 6. **dependent**

4. What is $P(A \text{ and } B)$ if $P(A) = \frac{1}{2}$ and $P(B) = \frac{2}{7}$, where A and B are independent events? **$\frac{1}{7}$**

5. What is the probability of rolling a 4 on a fair number cube and getting "tails" when tossing a coin? **$\frac{1}{12}$**

6. What is $P(A \text{ or } B)$ if $P(A) = 32\%$ and $P(B) = 17\%$, where A and B are mutually exclusive events? **0.49 or 49%**

7. At a local high school, 34% of the students take a bus to school and 56% of the students walk to school. What is the probability of randomly selecting a student that takes a bus or walks to school? **0.9 or 90%**

8. What is $P(A \text{ or } B)$ if $P(A) = \frac{1}{4}$ and $P(B) = \frac{1}{2}$, where A and B are overlapping events? **$\frac{5}{8}$**

9. A spinner has 8 equal sections numbered 1 to 8. What is the probability of the spinner stopping on a number that is a multiple of 3 or is greater than 5? **$\frac{1}{2}$**

Practice (continued)   *Form G*

Compound Probability

10. A local aquarium has 6 turtles, 12 penguins, and 8 sharks. You randomly select 1 animal to watch. What is the probability that you select a turtle or a shark? $\frac{7}{13}$

11. Writing A bag contains red, green, and blue golf balls and golf tees. You reach into a bag to randomly select one golf ball and one golf tee. Describe how to calculate the probability that you select a red golf ball and a red golf tee. **First count the total number of balls and tees, and the number of red balls and red tees. The probability of choosing a red ball is the number of red balls divided by the total number of balls. The probability of choosing a red tee is the number of red tees divided by the total number of tees. Since randomly choosing a ball and a tee are independent events, the probability of randomly selecting both a red ball and a red tee is the product of these probabilities.**

12. In a local town, 55% of the residents drive to work, 23% of the residents own a dog, and 6% of the residents walk to work. Find the probability that a randomly chosen resident owns a dog or walks to work. **0.28 or 28%**

13. You donate 8 baseballs to a local baseball team. Your uncle donates 12 baseballs. If a total of 50 baseballs are donated, what is the probability that the first pitch of the season uses one of your baseballs or one of your uncle's baseballs? Write your answer as a percent. **0.4 or 40%**

Use the spinner at the right for Exercises 14–17.

14. What is the probability of the arrow stopping on a consonant or one of the first 4 letters of the alphabet? $\frac{5}{6}$
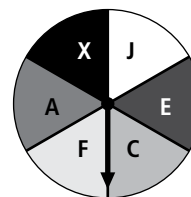
15. What is the probability of the arrow stopping on "X" on the first spin and "F" on the second spin? $\frac{1}{36}$

16. What is the probability of the arrow stopping on "J" or "A" on one spin? $\frac{1}{3}$

17. Reasoning What is the probability of the arrow stopping on "J" and "A" on one spin? Explain. **0; Explanations may vary. Sample: The spinner would have to stop on both the "J" and the "A" some of the time, which is impossible. The events are mutually exclusive.**