

Chapter 9 Test, Form 2A

Write the letter for the correct answer in the blank at the right of each question.

1. Find the value of five factorial.
 A. 5 B. 15 C. 25 D. 120 1. _____
2. Find the value of $4! \cdot 5!$.
 F. 2,880 G. 480 H. 360 I. 20 2. _____

DOGS The boarders at a kennel are made up of the following dogs. If one dog is randomly selected for a 30-minute training session, find the probability of each event. The fractions are written in simplest form.

3. $P(\text{female})$
 A. $\frac{7}{12}$ B. $\frac{1}{2}$ C. $\frac{7}{17}$ D. $\frac{7}{24}$ 3. _____
4. $P(\text{not pointer})$
 F. $\frac{3}{8}$ G. $\frac{1}{2}$ H. $\frac{3}{4}$ I. $\frac{7}{8}$ 4. _____
5. $P(\text{pointer or retriever})$
 A. 24 B. 1 C. $\frac{1}{2}$ D. 0 5. _____

Boarders	
Males	10
Females	14
Pointers	6
Retrievers	18

For Questions 6–8, use the Fundamental Counting Principle to find the total number of outcomes in each situation.

6. tossing a nickel, a quarter, a penny, and rolling a number cube
 F. 4 G. 12 H. 24 I. 48 6. _____
7. choosing coffee or tea, with cream, milk, or honey served in a glass or a plastic cup
 A. 24 B. 12 C. 7 D. 6 7. _____
8. picking a number from 1 to 20 and a letter from the alphabet
 F. 520 G. 260 H. 46 I. 4 8. _____
9. The spinner at the right has an equal chance of landing on each number. Find $P(6, \text{ then } 6)$.
 A. $\frac{1}{49}$ B. $\frac{1}{21}$ C. $\frac{1}{10}$ D. $\frac{2}{7}$ 9. _____



10. There are 5 peppermint, 4 licorice, 8 grape, 2 orange, and 9 cherry jelly beans in a bag. Paco picks a jelly bean. Without replacing the first one, he picks a second jelly bean. Find $P(\text{grape, then cherry})$.
 F. $\frac{8}{9}$ G. $\frac{12}{145}$ H. $\frac{2}{21}$ I. $\frac{1}{125}$ 10. _____

Use a tree diagram.

11. **CLOTHING** Janet has 4 blouses, 2 pairs of pants, and 3 pairs of socks that can be worn together. How many outfits can she make?
 A. 9 B. 18 C. 20 D. 24 11. _____
12. **TRAILS** At Brand-X Ranch you can ride the Buckin' Billy, Tennessee Lady, or Lag-Behind Nell. One trail goes through the woods, another goes up a mountain, and a third trail goes by a stream. How many different rides can you take?
 F. 3 G. 6 H. 9 I. 12 12. _____

Chapter 9 Test, Form 2A *(continued)*

Tell whether each problem represents a *permutation* (P) or a *combination* (C). Then solve the problem.

13. Twelve students remain in a game of tag. If 6 students go out in the next minute, how many different groups of six students can remain?
 A. C; 924 B. P; 665,280 C. P; 1,140 D. C; 1,638 13. _____
14. Brandon has 8 different plates with which to set the table. How many different ways can he place the plates?
 F. C; 36 G. P; 40,320 H. P; 6,720 I. C; 336 14. _____
15. In how many ways can Mia choose 10 mugs from a collection of 15?
 A. C; 3,003 B. C; 360,360 C. P; 105 D. C; 150 15. _____
16. How many ways can 7 clarinet players be seated in 7 chairs in the concert band?
 F. C; 823,543 G. P; 56 H. P; 5,040 I. C; 792 16. _____

FOOTBALL Tori has four tickets to a football game. She can take three of her friends with her, but five of her friends would like to go. They are Tom, Jill, Joe, Marvin, and Ginger. To decide, Tori writes each of her friends' names on a separate piece of paper and selects one.

17. What is the probability that Tori picks a boy?
 A. $\frac{1}{5}$ B. $\frac{2}{5}$ C. $\frac{3}{5}$ D. $\frac{2}{3}$ 17. _____
18. What is the probability that Tori picks someone whose name begins with the letter *J*?
 F. $\frac{3}{5}$ G. $\frac{1}{2}$ H. $\frac{2}{5}$ I. $\frac{1}{6}$ 18. _____
19. If Tori draws a name 15 times and Tom's name is picked five times, what is the experimental probability that Tom's name is picked?
 A. $\frac{5}{5}$ B. $\frac{5}{6}$ C. $\frac{1}{3}$ D. $\frac{1}{5}$ 19. _____
20. Choose the best comparison between the theoretical and experimental probability that Tom will go to the game. Use the experimental probability from Question 19.
 F. The theoretical probability is greater than the experimental probability. 20. _____
 G. The theoretical probability is less than the experimental probability.
 H. The theoretical probability is equal to the experimental probability.
 I. The theoretical probability is not related to the experimental probability.

Bonus CLASSES Ishi can select 3 of her classes from the following options: French, Spanish, German, art, band, and consumer science. What is the probability that Ishi will select French, art, and band? B: _____