CHAPTER 12

Mid-Chapter Quiz

Lessons 12-1 through 12-5

1. **RESTAURANT** At Burger Hut, you can order your hamburger with or without cheese, onions, or pickles, and rare, medium, or well-done. How many different ways can you order your hamburger? (Lesson 12-1)
2. **AUTOMOBILES** For a particular model of car, a dealer offers 3 sizes of engines, 2 types of stereos, 18 body colors, and 7 upholstery colors. How many different possibilities are available for that model? (Lesson 12-1)
3. **CODES** How many codes consisting of a letter followed by 3 digits can be made if no digit can be used more than once? (Lesson 12-1)
4. **ROUTES** There are 4 different routes a student can bike from his house to school. In how many ways can he make a round trip if he uses a different route coming than going? (Lesson 12-1)

Evaluate each expression. (Lesson 12-2)

5. $P(12, 3)$
6. $C(8, 3)$

Determine whether each situation involves a permutation or a combination. Then find the number of possibilities. (Lesson 12-2)

7. 8 cars in a row parked next to a curb
8. a hand of 6 cards from a standard deck of cards

9. **MULTIPLE CHOICE** A box contains 10 silver, 9 green, 8 blue, 11 pink, and 12 yellow paper clips. If a paperclip is drawn at random, what is the probability that it is *not* yellow? (Lesson 12-3)

   A $\frac{1}{5}$
   B $\frac{6}{25}$
   C $\frac{19}{25}$
   D $\frac{3}{5}$

Two cards are drawn from a standard deck of cards. Find each probability. (Lesson 12-3)

10. P(2 aces)
11. P(1 heart, 1 club)
12. P(1 queen, 1 king)

A bag contains colored marbles as shown in the table below. Two marbles are drawn at random from the bag. Find each probability. (Lesson 12-4)

Color	Number
red	5
green	3
blue	2

13. P(red, then green) if replacement occurs
14. P(red, then green) if no replacement occurs
15. P(2 red) if no replacement occurs
16. P(2 red) if replacement occurs

A twelve-sided die has sides numbered 1 through 12. The die is rolled once. Find each probability. (Lesson 12-5)

17. P(4 or 5)
18. P(even or a multiple of 3)
19. P(odd or a multiple 4)

20. **MULTIPLE CHOICE** In a box of chocolate and yellow cupcakes, the ratio of chocolate cupcakes to yellow cupcakes is 3:2. If the box contains 20 cupcakes, how many of them are chocolate? (Lesson 12-5)

   F 9
   G 10
   H 11
   J 12

21. **MULTIPLE CHOICE** A company received job applications from 2000 people. Six hundred of the applicants had the desired education, 1200 had the desired work experience, and 400 had both the desired education and work experience. What is the probability that an applicant selected at random will have the desired education or work experience?

   A $\frac{3}{10}$
   B $\frac{1}{2}$
   C $\frac{7}{10}$
   D $\frac{9}{10}$