

MODULE 6

LESSON 6

QUIZ

1. A small college needs two additional faculty members, a chemist, and a statistician. In how many ways can these positions be filled if there are three applicants for the chemistry position and four for the position in statistics?

- A. 7
- B. 2
- C. 12
- D. 24

Go to answer 1

2. In a certain state the automobile license plates consists of two letters followed by a four-digit number. How many distinct license plate numbers can be formed?

- A. 3, 276, 000
- B. 6, 760, 000
- C. 720
- D. 6

Go to answer 2

3. Evaluate:  ${}_8C_3$

- A. 336
- B. 56
- C. 6720

D. 40,320

Go to answer 3

4. How many six-digit license plates can be manufactured if no license plate number begins with 0?

A. 60

B. 1,000,000

C. 900,000

D. 151,000

Go to answer 4

5. In how many ways can the letters of the word **NUMBER** be arranged?

A. 1

B. 6

C. 46,656

D. 720

Go to answer 5

6. Evaluate:  ${}_8P_3$

A. 336

B. 40,320

C. 56

D. 120

Go to answer 6

7. In how many ways can 6 boys be placed in a line?

A. 720

B. 6

C. 46,656

D. 36

Go to answer 7

8. In how many ways can the letters of the word **NUMBER** be arranged if the **E** and **R** cannot be side by side?

A. 720

B. 240

C. 480

D. 250

Go to answer 8

9. How many permutations does a combination lock have if each combination has 3 numbers, no two numbers of the combination are the same, and the lock has 100 notches?

A. 780,000

B. 620,000

C. 970,000

D. 2,530

Go to answer 9

10. Evaluate:  ${}_3P_2 \cdot {}_4C_3$

A. 144

B. 24

C. 6

D. 1

Go to answer 10

11. In how many ways can 5 girls and 5 boys be placed in a line if all the girls line up first?

A. 14,400

B. 240

C. 120

D. 28,800

Go to answer 11

12. In how many ways can 3 candy bars be selected from 9 different candy bars?

A. 84

B. 27

C. 81

D. 36

Go to answer 12

13. Evaluate:  $\binom{100}{98}$

A. 9900

B. 9800

C. 0

D. 4950

Go to answer 13

14. Three couples have reserved seats in a given row for a concert. In how many different way scan they be seated if two members of each couple wish to sit together?

A. 720

B. 18

C. 48

D. 120

Go to answer 14

15. Evaluate:  $\binom{5}{5}$

A. 1

B. 120

C. 5

D. 0

Go to answer 15

16. In how many ways can 6 people be seated at a round table if 2 of the people refuse to site together?

A. 120

B. 24

C. 72

D. 48

Go to answer 16

17. Determine the number of three-digit numbers that can be formed from the ten digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 but the leading digit cannot be 0.

- A. 90
- B. 30
- C. 1000
- D. 900

Go to answer 17

18. How many lines are determined by 10 points if no 3 points lie on a straight line?

- A. 5
- B. 15
- C. 45
- D. 90

Go to answer 18

19. First, second, and third place prizes are to be awarded in a dance contest in which twelve contestants are entered. In how many ways can the prizes be awarded?

- A. 3
- B. 220
- C. 36
- D. 1320

Go to answer 19

20. In how many ways can you select a group of 5 red cards and 2 black cards from a deck containing 10 red cards and 8 black cards?

A. 1,693,440

B. 7,056

C. 800

D. 252

Go to answer 20

21. How many hands of 13 cards can be selected from a deck of 52 cards?

A. 2,906,000,000

B. 2,100,400,000,000

C. 2,906,960,000

D. 1,008,600,000,000

Go to answer 21

22. How many hands of 9 dominoes can be selected from a deck of 28 dominoes?

A. 6,906,000

B. 1,184,040

C. 6,906,900

D. 7,000,032

Go to answer 22

23. Evaluate:  $\binom{12}{0}$

A. 12

B. 1

C. 0

D. 24

Go to answer 23

24. Four people are to be selected at random from a group of four couples. In how many ways can this be done if the selection must include one member from each couple?

A. 54

B. 24

C. 16

D. 8

Go to answer 24

25. How many words can be formed from the letters of the word **BANANA** if each letter is to be used once?

A. 60

B. 720

C. 12

D. 6

Go to answer 25



## ANSWERS

1. Answer to Question 1 is "C".

Use the fundamental principle of counting.

Go back 1

2. Answer to Question 2 is "B".

Go back 2

3. Answer to Question 3 is "B".

Use the formula for computing the number of combinations of  $n$  things taken  $r$  at a time.

Go back 3

4. Answer to Question 4 is "C".

Use the fundamental principle of counting. Since 0 cannot be used there are 9 digits from which to choose for the first position, and 10 digits for the remaining positions.

Go back 4

5. Answer to Question 5 is "D".

Go back 5

6. Answer to Question 6 is "A".

Go back 6

7. Answer to Question 7 is "A".

Go back 7

8. Answer to Question 8 is "C".

Use the fundamental principle of counting. Remember to subtract twice the number of ways to arrange the letters with  $E$  and  $R$  next to each other from the total numbers of ways to arrange all the letters.

Go back 8

9. Answer to Question 9 is "C".

Go back 9

10. Answer to Question 10 is "B".

Go back 10

11. Answer to Question 11 is "A".

Go back 11

12. Answer to Question 12 is "A".

Go back 12

13. Answer to Question 13 is "D".

Use the formula for combination.

Go back 13

14. Answer to Question 14 is "C".

Use the fundamental principle of counting. Remember that a couple counts as two.

Go back 14

15. Answer to Question 15 is "A".

Go back 15

16. Answer to Question 16 is "C".

There are  $(6-1)! = 5!$  ways to seat 6 people. If two wish to sit together, the people can be seated in  $2 \cdot 4!$  ways. Thus, the number of ways they can be seated with the two apart is  $5! - 2 \cdot 4! = 120 - 2 \cdot 24 = 72$  ways.

Go back 16

17. Answer to Question 17 is "D".

Go back 17

18. Answer to Question 18 is "C".

Go back 18

19. Answer to Question 19 is "D".

Go back 19

20. Answer to Question 20 is "B".

Go back 20

21. Answer to Question 21 is "D".

Go back 21

22. Answer to Question 22 is "C".

Go back 22

23. Answer to Question 23 is "B".

Go back 23

24. Answer to Question 24 is "C".

Use the fundamental principle of counting. Remember that there are 2 people in a couple.

Go back 24

25. Answer to Question 25 is "A".

Go back 25