(1) _____ is the study of counting the different outcomes of some task.

    (a) Combinatorics

    (b) Differential Equations

    (c) Linear Algebra

    (d) Discrete Mathematics

(2) List and count the number of different outcomes that are possible when one letter is chosen from the word Mississippi.
    (a) {M, i, s}; 3

    (b) {M, i, s, p}; 11

    (c) {M, i, s, p}; 4

    (d) {M, i, s, s, i, s, s, i, p, p, i}; 11

(3) Suppose our sample set is the set of all prime numbers less than 20. List the elements in the event that the number is even.
    (a) {2}

    (b) {2, 4, 6, 8, 10, 12, 14, 16, 18}

    (c) {2, 4, 6}

    (d) {8}

(4) Use the counting principle to determine the number of possible outcomes of rolling three dice.

    (a)6

    (b) 18

    (c)36

    (d)216

(5) Use the counting principle to determine the number of possible three digit area codes if the first digit cannot be 0, and the experiment is performed with replacement.

(a) 10x10x10 = 1000

(b) 9x10x10 = 900

(c) 8x9x9 = 648

(d) 9x9x9 = 729

(6) List the elements of the sample space defined by the experiment.
Select an even single-digit whole number.

(a) {2,4,6,8}

(b) {0,2,4,6,8}

(c) {1,3,5,7}

(d) {0,2,4,6,8 ,10}

(7) List the elements of the sample space defined by the experiment.
Toss a coin twice.

(a) {H,T}

(b) {1,2,3,4}

(c) {HH, HT, TH, TT}

(d) {1H, 2H, 1T, 2T}

(8) Use the counting principle to determine the number of elements in the sample space.
Two digits are selected without replacement from the digits 1, 2, 3, and 4.

(a) 24

(b) 12

(c) 36

(d) 15

(9) Use the counting principle to determine the number of elements in the sample space.
The possible ways to complete a true-false examination consisting of 23 questions.

(a) 145

(b) $2^{23}$

(c) $23^2$

(d) 1578

(10) Use the counting principle to determine the number of elements in the sample space. Two digits are selected with replacement from the digits 1, 2, 3, 4, 5, and 6.

    (a) 22

    (b) 36

    (c) 30

    (d) 42

(11)    Evaluate 7!

    (a) 1324

    (b) 48

    (c) 5040

    (d) 28

(12)    Evaluate $\frac{51!}{50!}$

    (a) 51

    (b) 50

    (c) 1.02

    (d) 1

(13) Suppose you have 7 songs in a playlist but only have time to listen to two of the songs. How many permutations are there in which the songs could be played?

    (a) 2520

    (b) 35

    (c) 42

    (d) 14

(14) A password requires 9 characters. If a person uses permutations of their sister's birthday of JANUARY11 to create a password, how many different passwords are possible?

        (a) 80

        (b)180

        (c )90720

        (d)720

(15)A math quiz is generated by randomly choosing 5 questions from a test bank consisting of 50 questions.
What formula is needed to calculate the number of different quizzes that can be generated?

        (a) Permutation Formula

        (b) Combination Formula

        (c) Fermentation Formula

        (d) Counting Principle Formula

(16)Evaluate the expression.

$$\frac{P(7,4) \cdot P(6,3)}{P(5,4)}$$

        (a) 1329

        (b) 1290

        (c) 840

        (d) 2290

(17)A student downloaded six music files to a portable MP3 player. In how many different orders

can the songs be played?

        (a) 520

        (b) 720

        (c) 220

(d) 320

(18) A committee of 6 people is chosen from 9 women and 9 men. How many different committees

are possible that consist of 3women and 3 men?

(a) 306

(b) 256

(c) 7056

(d) 356

(19) Evaluate the expression

$C(8,5) \cdot C(9,4)$

(a) 3050

(b) 7056

(c) 2056

(d) 5056

(20) How many combinations are possible? Assume the items are distinct.
5 items chosen 3 at a time

(a) 10

(b) 5

(c) 9

(d) 8

(21) An event that is not very likely has a probability close to:

(a) 0

(b) 1

(c) 100

(d) -1

(22)An event that is guaranteed to happen has a probability of exactly:

  (a) 0

  (b) 0.25

  (c) 0.75

  (d) 1

(23)If 5 balls of the same size and weight are placed in a bag, each of a different color: white, green, orange, pink, and purple; and a blindfolded person chooses one ball, what is the probability that the person will choose the purple ball?

  (a)1/4

  (b) 1/5

  (c)1/2

  (d) 2/5

(24) When a probability is based on data gathered from an experiment, it is called:

  (a) a theoretical probability

  (b) a data-driven probability

  (c ) an empirical probability

  (d)a practical probability

(25)If the odds *in favor* of an event occurring are 12 to 5, what is the probability of the event

  occurring?

  (a)  5 to 12

  (b)  12 to 17

  (c)  0.71

  (d)  0.42

(26)Two regular 6-sided dice are tossed. Compute the probability that the sum of the pips on the upward faces of the 2 dice is the following.
At least 10

(a) 2/3

(b) 5/6

(c) 1/6

(d) 5/3

(27) Two regular six-sided dice are tossed. Compute the probability that the sum of the pips on the upward faces of the two dice is the following.
At most 7

(a) 1/6

(b) 5/12

(c) 7/12

(d) 3/4

(28) Assume that it is equally likely for a child to be born a boy or a girl, and that the Lin family is planning on having three children.

compute the probability that the lins will have 2 boys and 1 girl.

(a) 1/8

(b) 5/8

(c) 3/8

(d) None

(29) Assume that it is equally likely for a child to be born a boy or a girl, and that the Lin family is planning on having three children. Compute the probability that the lins will have no girls

(a) 2/3

(b) 5/3

(c) 1/8

(d) 7/8

(30) Assume that it is equally likely for a child to be born a boy or a girl, and that the Lin family is planning on having three children.

compute the probability that the lins will have no boys

       (a) 1/5

       (b) 2/9

       (c) 1/8

       (d) 5/8

(31) Which of the following does *not* fall under the umbrella of Descriptive Statistics?

       (a) collection

       (b)presentation

       (c)interpretation

       (d) summarization

(32) Which of the following is *not* a measure of central tendency?

       (a)Mode

       (b) Variance

       (c)Mean

       (d) Median

(33) Find the mean of the following values:

   31, 12, 15, 13, 19, 2

   (a) 14

   (b) 29

   (c) 15.33

   (d) 12.37


(34) Find the mode of the following values:

   31, 12, 15, 13, 19, 2

   (a) 14

   (b) 9.52

   (c) 8,34

   (d) none


(35) Find the median of the following values:

   31, 12, 15, 13, 19, 2

   (a) 14

   (b) 12.2

   (c) 9.5

   (d) None


(36) The following table displays the ages of female actors when they starred in their award-winning performances.

 Ages of Female Award Recipients

 43  43  36  33  41  35  31  72  32  47  37  62

 19  39  24  78  40  28  31  34  46  51  40  33

26  25  35  35  33  29  30  28  60  32  34  44

Find the mean and the median for the data in the table. (Round your mean to one decimal place.)

(a) Mean= 32.5 , Median=35

(b) Mean= 38.5 , Median=35

(c) Mean= 34.5 , Median=36

(d) Mean= 32.5 , Median=36

(37) After six biology tests, Ruben has a mean score of 72. What score does Ruben need on the next test to raise his average (mean) to 74?

(a) 62

(b) 81

(c) 83

(d) 86

(38) A professor grades student on three tests, four quizzes, and a final examination. Each test counts as two quizzes and the final examination counts as two tests. Sara has test scores of 65, 62, and 60. Sara's quiz scores are 61, 96, 80, and 89. Her final examination score is 65. Use the weighted mean formula to find Mara's average for the course. (Round your answer to one decimal place.)

(a) 62.5

(b) 82.5

(c ) 68.6

(e) 65.2

(39) During a two-hour period, the temperature in a city dropped from a high of 43°F to a low of −19°F. What was the range of the temperatures during this period?

(a) 65°F

(b) 52°F

(c) 62°F

(d) 60°F

(40) Which of the following is *not* a measure of dispersion?

(a) variance

(b)range

(c ) mode

(d)standard deviation

(41) Calculate the range of the following data sample:

2.5, 1.3, 7.8, 1.9, 4.3

(a) 1.3

(b) 6.5

(c) 7.8

(d) 9.1

(42) Calculate the standard deviation of the following data sample:

2.5, 1.3, 7.8, 1.9, 4.3

(a) 27.5104

(b) 6.8776

( c) 2.6225

(e) 3.45

(43) Calculate the variance of the following data sample:

2.5, 1.3, 7.8, 1.9, 4.3

(a) 27.5104

(b) 6.8776

( c) 2.6225

(d) 3.45

(44) Which measure of dispersion has the benefit of being in the same units as the data?

(a) variance

(b) median

(c) mode

(d) standard deviation