1. A fair coin is thrown in the air four times. If the coin lands with the head up on the first three tosses, what is the probability that the coin will land with the head up on the fourth toss?

A. 0
B. 1/6
C. 1/8
D. 1/2

2. How many different three-member teams can be formed from six students?

A. 20
B. 120
C. 216
D. 720

3. How many different 6-letter arrangements can be formed using the letters in the word ABSENT, if each letter is used only once?

A. 6
B. 36
C. 720
D. 46,656

4. If P(E) is the probability that an event will occur, which of the following must be *false*?

A. P(E) = 1
B. P(E) = 1/2
C. P(E) = 0
D. P(E) = -1

5. Evaluate 1!+2!+3!

A. 5
B. 6
C. 9
D. 10

6. A standard deck of 52 cards is shuffled. What is the probability of choosing the 5 of diamonds?

A. 1/5
B. 1/13
C. 5/52
D. 1/52

7. A die is rolled. What is the probability that the number rolled is greater than 2 and even?

A. 1/2
B. 1/3
C. 2/3
D. 5/6

8. A pair of dice is rolled. A possible event is rolling a multiple of 5. What is the probability of the complement of this event?

A. 2/36
B. 12/36
C. 29/36
D. 32/36

9. Your state issues license plates consisting of letters and numbers. There are 26 letters and the letters may be repeated. There are 10 digits and the digits may be repeated. How many possible license plates can be issued with two letters followed by three numbers?

A. 25,000
B. 67,600
C. 250,000
D. 676,000

10. Driving to work, a commuter passes through a sequence of three intersections with traffic lights. At each light, she either stops or continues. The sample space consisting of the set of all possible outcomes would contain how many elements?

A. 2
B. 3
C. 6
D. 8

11. How many different 5-letter arrangements are there of the letters in the word DIGIT?

A. 5
B. 30
C. 60
D. 120

12. A poker player is dealt three spades and two hearts. He discards the two hearts and draws two more cards. What is the probability that he draws two more spades?

A. 0.0416
B. 0.0722
C. 0.9278
D. 0.9584

13. A movie theater sells 3 sizes of popcorn (small, medium, and large) with 3 choices of toppings (no butter, butter, extra butter). How many possible ways can a bag of popcorn be purchased?

A. 1
B. 3
C. 9
D. 27

14. A pair of dice is rolled and the resulting number is odd. Which of the following events is the complement of this event?

A.  A number greater than 8 is rolled
B.  An even number is rolled
C.  A number less than 5 is rolled
D.  A multiple of 5 is rolled

15. From a standard deck of cards, one card is drawn. What is the probability that the card is black and a jack?

A.  1/2
B.  1/13
C.  1/26
D.  1/52

16. A jar contains 2 quarters, 3 dimes, 4 nickels, and 5 pennies. One coin is removed at random. What is the probability that the coin is a dime or a nickel?

A.  3/14
B.  4/14
C.  7/14
D.  1/7

17. For what value of $x$ will $x$ and 12 have the same mean (average) as 4 and 30?

A.  4
B. 48
C. 22
D. 12

18. Find the median:   5, 15, 10, 15, 5, 10, 10, 20, 25, 15.

A.  10
B. 12.5
C. 15
D. no median

19.  Jennifer has grades of 84, 65, and 76 on three math tests.  What grade must she obtain on the next test to have an average of exactly 80 for the four tests?

A.  80
B.  93
C. 95
D. 98


20.  Which situation should be analyzed using bivariate data?

A.  Ms. Jones keeps a list of the amount of time her daughter spends on her social
     studies homework.
B.  Mr. Benjamin tries to see if his students' shoe sizes are directly related to their heights.
C.  Mr. Waterwell records his customers' best video game scores during the summer.
D.  Mr. Logan keeps track of his daughter's algebra grades for the quarter.


21.  Which statement describes a situation that is *not* a causal relationship?

A.  The rooster crows and the sun rises.
B.  The more miles driven the more gasoline needed.
C.  The more powerful the microwave the faster the food cooks.
D.  The faster the pace of the runner the quicker the runner finishes.


22.  The heights of students in inches are:  65, 63, 68, 59, 74, 59, 68, 61, 64, 60, 69, 72, 55, 64.
     What percent (to the *nearest percent*) of the students are shorter than 5 feet 7 inches?

A.  28%
B.  29%
C.  50%
D.  64%


23.  Suppose that a room contains 16 people. What is the probability that at least two of them have a
     common birthday?

A.  0.125
B.  0.284
C.  0.481
D.  0.716


24.  A storeowner kept a tally of the sizes of suits purchased in his store. Which measure of central tendency should the storeowner use to describe the average size suit sold?

 A.  mean
 B.  mode
C.  median
D.  range

25. According to the box-and-whisker plot shown below, what is the third quartile value?

A. 70
B. 80
C. 90
D. 100
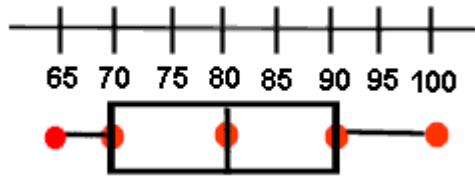


26. Data regarding the students in the senior class: 578 students, 236 honor students, 150 scholarship winners, 51% male. This data can be described as being

A. qualitative
B. quantitative
C. both
D. neither

27. The data set 5, 6, 7, 8, 9, 9, 9, 10, 12, 14, 17, 17, 18, 19, 19 represents the number of hours spent on the Internet in a week by students in a mathematics class. Which box-and-whisker plot represents this data?
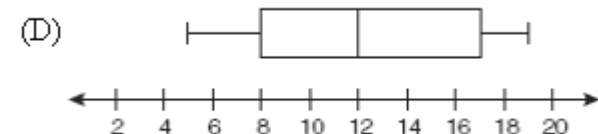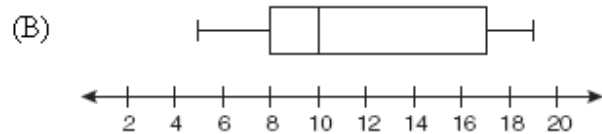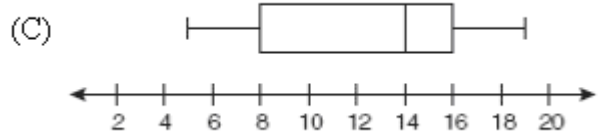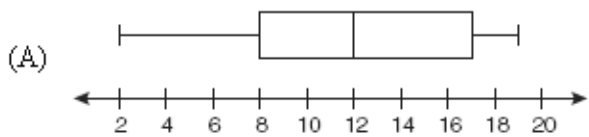


28. When data is graphed and a positive correlation is observed, the first set of data is always causing the affect seen in the second set of data.

A. True    B. False

29. A tally was made of the number of times each color of crayon was used by a kindergarten class. Which measure of central tendency should the teacher use to determine which color is the favorite color of her class?

A. mean              B. mode              C. median              D. range

30. Given the data below, what type of correlation exists between the number of hours spent in the mall and the number of dollars spent?

| Hours in Mall | 10 | 8 | 9 | 3 | 1 | 2 | 5 | 6 | 7 | 8 | 2 | 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Dollars spent | 40 | 15 | 24 | 20 | 10 | 35 | 50 | 70 | 18 | 25 | 100 | 60 |

A. positive correlation

B. negative correlation

C. no correlation apparent

31. The number of iTunes downloaded by 25 students in one week ranges from 15 to 55. The box-and-whisker plot below depicts this data.
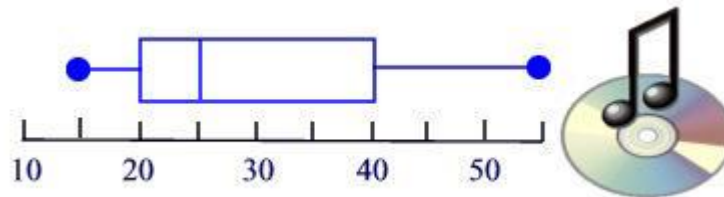


What is the number of iTunes at the 50th percentile?

A. 15
B. 20
C. 25
D. 40

32. The values of 11 houses on 15th Street are shown in the table. Find the mean value of these houses in dollars.

| Value per House | Number of Houses |
|---|---|
| $100,000 | 1 |
| $175,000 | 5 |
| $200,000 | 4 |
| $700,000 | 1 |

A. $175,000
B. $200,000
C. $225,000
D. $240,000

33. The correlation seen in the graph below would be best described as?

    A. high positive correlation
    B. low positive correlation
    C. high negative correlation
    D. low negative correlation
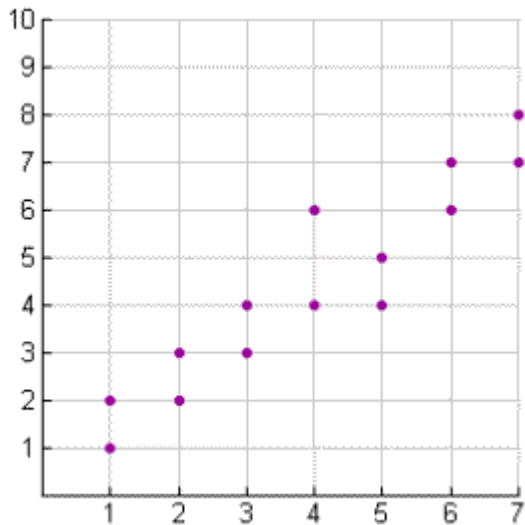


34. The science test grades are posted. The class did very well. All students taking the test scored over 75. Unfortunately, 4 students were absent for the test and the computer listed their scores as 0 until the test is taken. Assuming that no score repeated more times than the 0's, what measure of central tendency would most likely give the best representation of this data?

  A. mean         B. mode       C. median       D. range

35. The playing life of a Sunshine MP3 player is normally distributed with a mean of 600 hrs and standard deviation of 100 hr. What is the probability that a player selected at random will last 600 to 700 hours?

A. 0.136
B. 0.341
C. 0.682
D. 0.8425