PROBABILITY & STATISTICS

_____1. What is the probability of an event that won't occur?

A. 0 B. 1 C. 100 D. 50

_____2. What's the probability of an event that will always occur?

A. 0 B. 1 C. 50 D. 100

_____3. Which of the following numbers can NOT be used to express a probability?

A. $\frac{5}{9}$ B. $\frac{2}{3}$ C. 20% D. 110%

_____4. The probability of an event occurring is 0.7. What is the probability it won't occur?

A. 0.7 B. 0.3 C. 0 D. 1

_____5. There are 21 girls and 16 boys in a class. What is the probability a girl will be chosen from the class?

A. $\frac{21}{16}$ B. $\frac{16}{21}$ C. $\frac{21}{37}$ D. $\frac{16}{37}$

_____6. You are a playing a game that uses an 8 sided die. What's the probability it will land on a 6?

A. $\frac{1}{8}$ B. $\frac{1}{6}$ C. $\frac{3}{4}$ D. 1

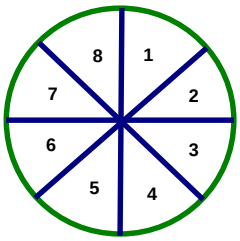
_____7. When rolling a fair six-sided die, what is the probability of rolling a number greater than four?

A. $\frac{5}{6}$ B. $\frac{1}{2}$ C. $\frac{1}{3}$ D. $\frac{2}{3}$

_____8. When a coin is tossed a single time, what is the probability that it will land with the tails up?

A. 0 B. 1 C. $\frac{1}{2}$ D. $\frac{1}{4}$

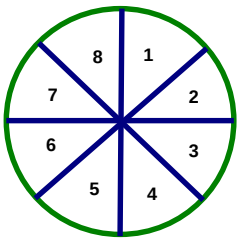
_____9. Given the spinner below, divided into 8 equal regions, what is the probability of landing on a prime numbered region?



A. $\frac{1}{4}$ B. $\frac{1}{2}$

C. $\frac{5}{8}$ D. 1

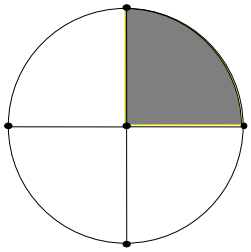
_____10. Using the spinner below, with equally sized regions, what is the probability that you will spin a two, three, or an eight?



A. $\frac{1}{4}$ B. $\frac{1}{2}$

C. $\frac{5}{8}$ D. $\frac{3}{8}$

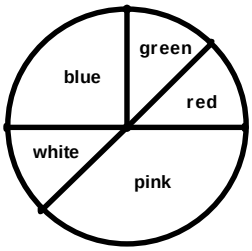
_____11. The spinner below is divided into 4 equal areas. If Steve spins the spinner 64 times, how many times should he expect to land in the shaded region?



A. 16 B. 48

C. $\frac{1}{4}$ D. 256

_____12. Given the spinner below, what is the approximate probability that a spin will land in the pink or green area?



A. $\frac{2}{5}$ B. $\frac{3}{5}$

C. $\frac{1}{2}$ D. $\frac{3}{8}$

_____13. There are 3 blue, 2 red, and 4 yellow marbles in a bag. If one marble is chosen at random, what is the probability that it will be blue?

A. $\frac{1}{3}$ B. 3 C. $\frac{2}{3}$ D. 6

_____14. A bag contains 2 green, 4 blue, 4 white, and 4 yellow marbles. What is the probability of selecting a marble that is NOT white or green out of the bag?

A. $\frac{3}{7}$ B. $\frac{4}{7}$ C. $\frac{5}{7}$ D. $\frac{1}{2}$

_____15. What is the probability of rolling a five on a die and then tossing a coin and having tails land up?

A. $\frac{1}{8}$ B. $\frac{1}{2}$ C. $\frac{1}{12}$ D. $\frac{1}{4}$

_____16. Two quarters are tossed. What is the probability of getting two heads up?

A. $\frac{1}{8}$ B. $\frac{1}{2}$ C. $\frac{1}{12}$ D. $\frac{1}{4}$

_____17. Two number cubes are rolled. What is the probability that the sum of the numbers rolled is a 5 or an 11?

A. $\frac{1}{6}$ B. $\frac{1}{2}$ C. $\frac{1}{4}$ D. $\frac{1}{8}$

_____18. The Cubs have won 9 games and lost 2 so far this season. What are the odds in favor of the Cubs winning their next game?

A. 9:11 B. 9:2 C. 11:9 D. 2:9

_____19. The odds for an event are 4:9. What is the probability the event will occur?

A. $\frac{4}{13}$ B. $\frac{4}{9}$ C. $\frac{9}{13}$ D. $\frac{4}{5}$

_____20. The odds for an event are 2:5. What is the probability the event WON'T occur?

A. $\frac{2}{7}$ B. $\frac{5}{7}$ C. $\frac{2}{5}$ D. $\frac{5}{2}$

_____21. The probability of an event occurring is $\frac{3}{10}$. What are the odds for the event?

A. 3:7 B. 3:10 C. 7:3 D. 10:3

_____22. The frequency table below represents data collected from rolling a die 60 times. Which statement best compares the experimental probability with the theoretical probability of rolling a number less than 4?

Number Rolled	1	2	3	4	5	6
Frequency	5	7	9	11	13	15

A. The probabilities are the same
B. The experimental probability is greater than the theoretical probability
C. The theoretical probability cannot be calculated
D. The experimental probability is less than the theoretical probability

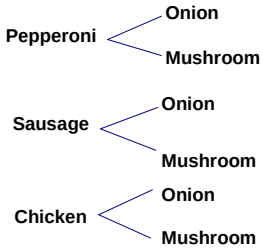
_____23. Kristen is going on vacation to Hawaii. She brings 4 pairs of shorts, 5 tops, and 3 kinds of shoes. How many outfits can she make?

A. 12 B. 60 C. 36 D. 27

_____24. Jack wants to make a sandwich. He has 2 types of bread, 4 types of meats, and 4 types of cheeses. How many different types of sandwiches can he make?

A. 3 B. 10 C. 30 D. 32

_____25. Certain 2 topping pizzas were put on sale at the local pizzeria. McKay wanted to know how many different 2 topping pizzas she could order for the sale price. From the available toppings she is allowed to choose 1 meat and 1 vegetable. She made the tree diagram shown below. How many different types of pizzas can McKay order?



A. 3 B. 9

C. 6 D. 27

_____26. Stephanie has a row of five desks. In how many ways can she arrange five students in those desks?

A. 5 B. 25 C. 60 D. 120

_____27. A lock has a three digit combination code with numbers from 0 to 9. How many possible codes can there be for the lock?

A. 10 B. 100 C. 1,000 D. 10,000

_____28. How many ways can you arrange the word HOME?

A. 4 B. 12 C. 24 D. 48

_____29. Brian's math grades were 94, 86, 64, 94, 78, and 82. What is the mean?

A. 82 B. 83 C. 86 D. 94

_____30. Jeff scored a 82, 88, 95, and 91 on four science exams. What does he have to score on the next exam to get a 90% or better average in the class?

A. 89 B. 94 C. 90 D. 100

_____31. A class has 20 students. The mean score on a test for 19 of the students was 74. The 20^{th} student earned a score of 94. What is the new mean score for the class?

A. 70 B. 84 C. 75 D. 90

_____32. What is the median of 22, 13, 8, 20, and 27?

A. 5 B. 13 C. 18 D. 20

_____33. What is the median of the data below?

1	5, 8
2	1, 2, 6
3	3
4	0
5	4

A. 22 B. 24

C. 26 D. 39

_____34. What is the mode of 21, 25, 27, 28, 28, 30, and 31?

A. 10 B. 21 C. 28 D. 31

_____35. What is the range of the data below?

1	1, 3
2	1, 2, 7
3	5
4	0
5	8

A. 11 B. 24.5

C. 27 D. 47

_____36. The lowest score on a quiz was 23, the range was 75, the mean was 68, and the median was 72. What was the highest score?

A. 52 B. 45 C. 49 D. 98

_____37. The following is a list of salaries: $35,000, $38,000, $85,000, $37,000, $40,000. If a new employee is hired which measure of central tendency should be used to determine the new employee's salary?

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

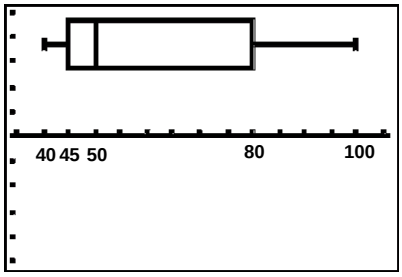
_____38. If all employees at a company made between $45,000 and $55,000 and the company hires a new supervisor with a salary of $95,000, which measure of central tendency is changed the most?

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

_____39. Which number, in the following list, would be considered an outlier? 2, 4, 5, 6, 7, 18.

A. 2 B. 5.5 C. 16 D. 18

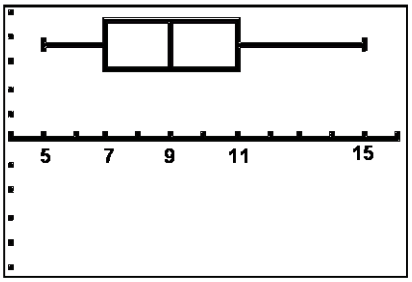
_____40. The following box and whisker plot represents test scores. What is the median of these ages?



A. 50 B. 60

C. 35 D. 30

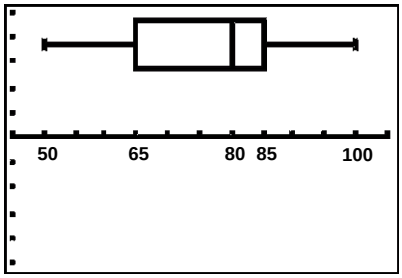
_____41. The following box and whisker plot represents ages. What is the range of these ages?



A. 5 B. 9

C. 10 D. 15

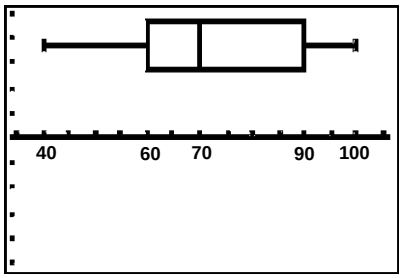
_____42. The following box and whisker plot represents scores. What is the inter-quartile range?



A. 20 B. 50

C. 80 D. 100

_____43. The following box and whisker plot represents scores on a recent exam. What percentage of the scores lies between 70 and 100?

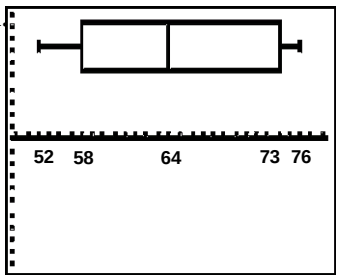


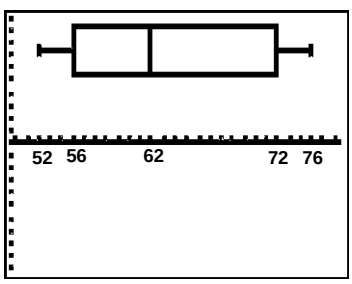
A. 25% B. 50%

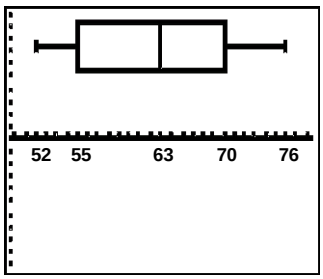
C. 75% D. 30%

_____44. The heights of student in inches are shown in the stem-and-leaf plot below. Which box and whisker plot represents the heights of the students?

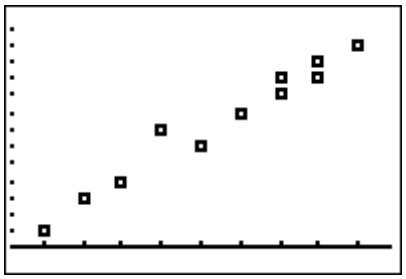
5	2, 4, 6
6	0, 2, 4, 8
7	2, 4, 4, 6

A. 

B. 

C. 

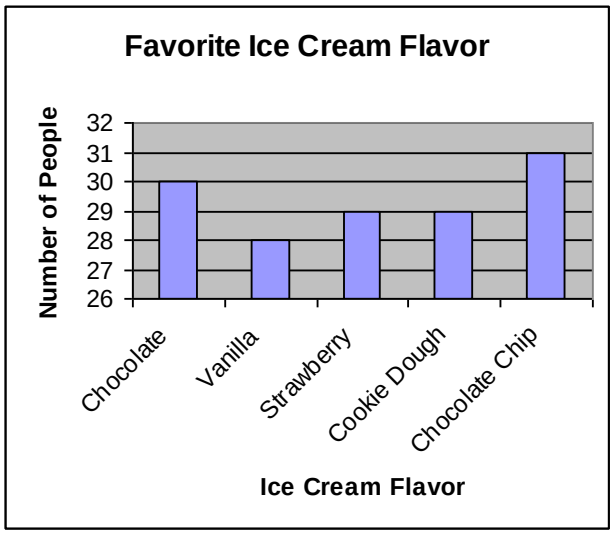
_____45. The following scatter plot contains the heights of children between 5 and 13. Determine what type of correlation (if any) the points below have.



A. positive B. negative

C. normal D. no correlation

_____46. The following chart represents the results of a student survey about favorite ice cream flavors. Which statement below best describes the relationship amongst the data?



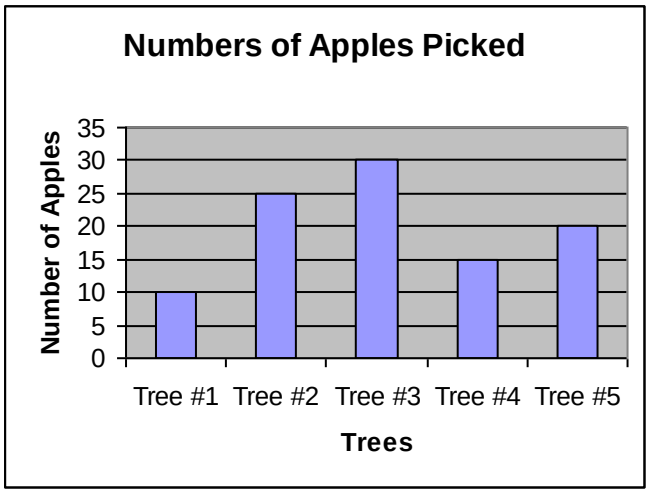
A. Cookie Dough is overwhelmingly preferred.

B. Students prefer Strawberry over Chocolate.

C. All preferences are approximately the same.

D. Vanilla is preferred more than Chocolate Chip.

_____47. The number of apples picked from five trees is shown in the bar graph below. What is the mean number of apples picked from Tree #1, Tree #4, and Tree #5?



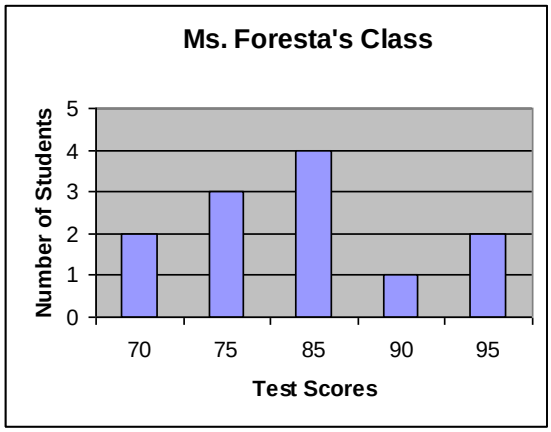
A. 9 apples

B. 15 apples

C. 20 apples

D. 25 apples

_____48. The following graph shows test scores for 12 of the students in Ms. Foresta's class. What is the approximate mean test score of the 12 students?



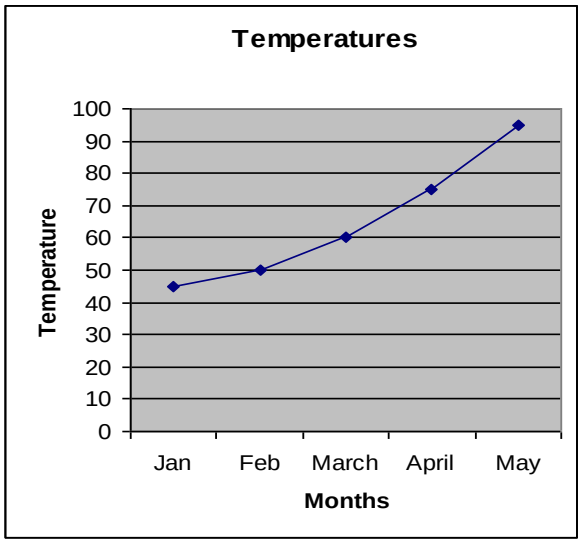
A. 35

B. 75

C. 82

D. 85

_____49. Below is a graph showing the temperature changes over time. Following the trend of temperatures, what should the temperature be in June?



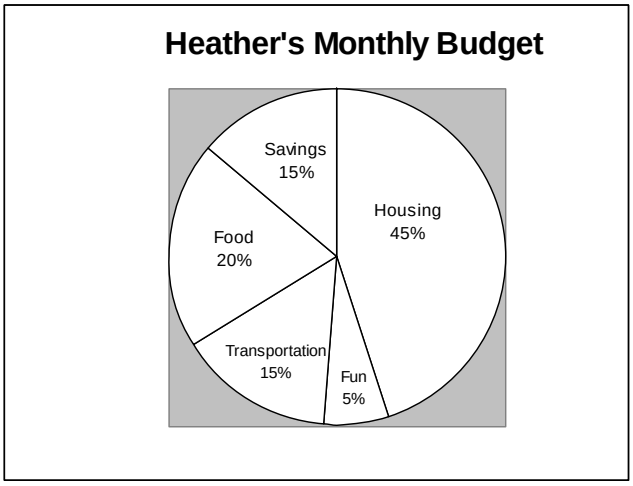
A. 100°

B. 110°

C. 120°

D. 130°

_____50. The following is a circle graph showing the budget breakdown of Heather's monthly budget. If Heather made $3,800 last month, how much did she put into savings?



A. $500

B. $570

C. $600

D. $570

_____51. Which graph is best used to show a change over time?

A. line B. circle C. bar D. box and whisker

_____52. Which graph is best used when comparing a part to a whole?

A. line B. circle C. bar D. scatterplot

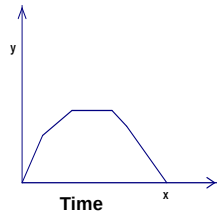
_____53. Which graph shows the relationship among groups?

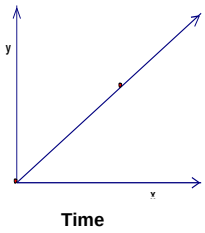
A. line B. circle C. bar D. scatterplot

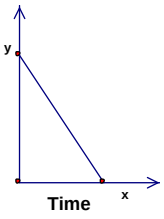
_____54. Which type of graph would best represent data that compares shoe sizes to heights?

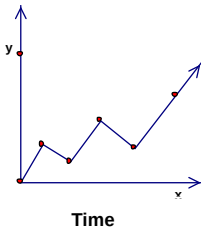
A. line B. circle C. bar D. scatterplot

_____55. Which of the following graphs best represents the altitude of an airplane from the time of departure to the time of landing? (*x-axis* represents time, *y-axis* represents altitude)

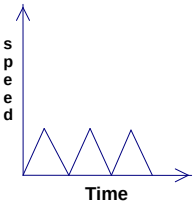
A. 

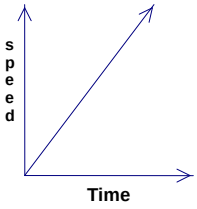
B. 

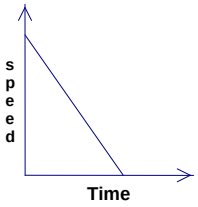
C. 

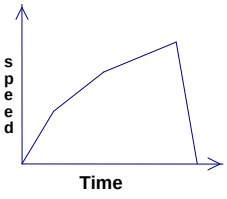
D. 

_____56. Which of the following graphs best represents the speed of a car in stop-and-go traffic from the time it leaves its parking place to the time it parks at its destination point?

A. 

B. 

C. 

D. 

Probability & Statistics

Key

1. A
2. B
3. D
4. B
5. C
6. A
7. C
8. C
9. B
10. D
11. A
12. C
13. A
14. B
15. C
16. D
17. A
18. B
19. A
20. B
21. A
22. D
23. B
24. D
25. C
26. D
27. C
28. C
29. B
30. B
31. C
32. D
33. B
34. C
35. D
36. D
37. B
38. A
39. D
40. A
41. C
42. A
43. B
44. A
45. A
46. C
47. B
48. C
49. C
50. B
51. A
52. B
53. C
54. D
55. A
56. A