

Question (1): MCQ

[25]

For questions 1 to 5, refer to the following information:

Starting Weights in Pounds of 36 Female Students Participating in a Weight-Loss Program	
Stem	Leaves
12	3 8 8 9
13	2 3 3 4 4 8 9
14	0 2 2 4 5 5 5 6 8 8 9
15	0 1 3 3 5 6 7 8 9 9
16	1 2 2 9

Legend: 12|3 = 123

- According to the stem-and-leaf plot, what starting weight occurs most often?
 - 128
 - 134
 - 145
 - 162
- According to the stem-and-leaf plot, approximately what percent of the 36 female participants have a starting weight of at least 145 pounds?
 - 33 %
 - 44 %
 - 50 %
 - 58 %
- To the nearest tenth, what is the mean starting weight in pounds of the 36 participants?
 - 140.0
 - 145.0
 - 145.5
 - 145.8
- To the nearest tenth, what is the median starting weight in pounds of the 36 participants?
 - 140.0
 - 145.0
 - 145.5
 - 145.8
- What is the modal starting weight in pounds of the 36 participants?
 - 128
 - 145
 - 162
 - There is no mode

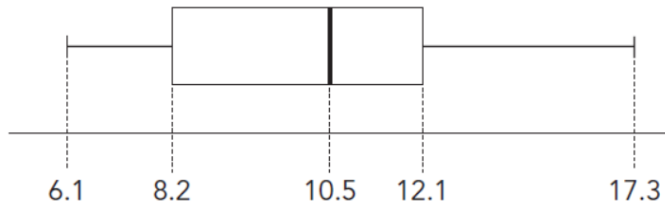
For questions 6 to 11, refer to the information shown here:



- According to the dot plot, how many customers waited less than 15 minutes in line?
 - 10
 - 12

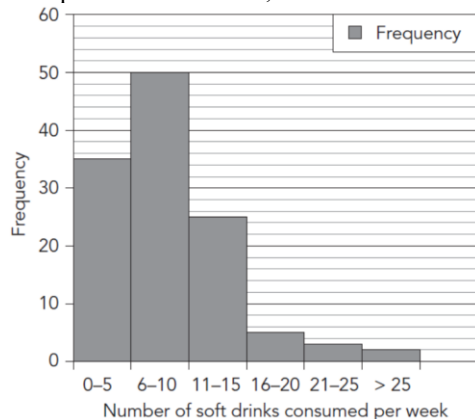
- 13
 - 15
- According to the dot plot, what is the greatest amount of time in minutes waited in line by a customer?
 - 15
 - 17
 - 19
 - 20
 - The median is
 - 8
 - 9
 - 10
 - 13
 - The first Quartile Q1 is
 - 4
 - 5
 - 6
 - 7
 - The IQR is equal to
 - 8
 - 6
 - 3
 - 14
 - To the nearest tenth, what is the mean number of minutes the 16 customers waited in line?
 - 10.0
 - 10.3
 - 10.5
 - 11.0
 - In the following data set, what additional number should be included in the data set to yield a mean of 10?
5, 8, 10, 12, ____
 - 8
 - 10
 - 12
 - 15
 - A student has the following scores on three 100-point tests: 77, 91, and 94. What score must the student earn on the fourth 100-point test to have an average (mean) of 90 for the four tests?
 - 90
 - 95
 - 98
 - 100
 - Consider the following data as a sample and calculate the variance to three decimal places.
15, 33, 30, 50, 0
 - 359.300
 - 287.440
 - 18.955
 - 16.954
 - Consider the following data as a sample and calculate the standard deviation to two decimal places.
-4, 25, -4, 11, 19, 4
 - 144.30
 - 120.25
 - 12.01
 - 10.97

For questions 16–19, refer to the following box plot:



16. What is the median of the dataset whose box plot is shown?
 - a) 8.2
 - b) 10.1
 - c) 10.5
 - d) 12.1
17. What is the range of the dataset whose box plot is shown?
 - a) 11.2
 - b) 9.1
 - c) 6.8
 - d) 3.9
18. What is the IQR of the data set whose box plot is shown?
 - a) 11.2
 - b) 9.1
 - c) 6.8
 - d) 3.9
19. Which of the following statements is always true of the box plot shown?
 - a) There are no outliers in the data.
 - b) A value of 17.3 is a possible outlier.
 - c) Any value between 6.1 and 8.2 is a possible outlier.
 - d) Any value between 12.1 and 17.3 is a possible outlier.

For questions 20 and 20, refer to the following graph:



20. Based on the frequency histogram shown, about how many students consume fewer than 16 soft drinks per week?
 - a) 10
 - b) 50
 - c) 85
 - d) 110
21. Describe the shape of the distribution shown.
 - a) skewed left
 - b) negatively skewed
 - c) positively skewed
 - d) not skewed
22. A fair coin is flipped six times, and the up face on each coin is observed. Determine the number of outcomes in the sample space of this experiment.
 - a) 2
 - b) 12
 - c) 36
 - d) 64

23. Find the probability that a number greater than 4 appears on the up face in a single toss of a fair six-sided die.
 - a) $1/6$
 - b) $1/3$
 - c) $1/2$
 - d) $2/3$
24. Find the probability that at least one head appears when two fair coins are flipped and the up face on each is observed.
 - a) $1/4$
 - b) $2/4$
 - c) $3/4$
 - d) 1
25. Find the probability of drawing a black or red marble when a single marble is drawn at random from an urn containing 7 black marbles, 6 green marbles, and 10 red marbles. (Assume the marbles are identical except for color.)
 - a) $7/23$
 - b) $10/23$
 - c) $13/23$
 - d) $17/23$

Question (2):

[10]

Seat belt use and auto accidents: Based on records of automobile accidents in a recent year, the Department of Highway Safety and Motor Vehicles in Florida reported the counts who survived (S) and died (D), according to whether they wore a seat belt (Y = yes, N = no). The data are presented in the contingency table shown.

Outcome of auto accident by whether subject wore seat belt			
Wore Seat Belt	Survived (S)	Died (D)	Total
Yes (Y)	412,368	510	412,878
No (N)	162,527	1,601	164,128
Total	574,895	2,111	577,006

- (a) Using these data, estimate (i) $P(D)$, (ii) $P(N)$.
- (b) Estimate the probability that an individual did not wear a seat belt and died
- (c) Estimate the probability that the individual died, given that the person (i) wore and (ii) did not wear a seat belt
- (d) Are the events of dying and wearing a seat belt independent? Justify your answer

Question (3):

[5]

Profit and the weather: From past experience, a wheat farmer living in Manitoba, Canada, finds that his annual profit (in Canadian dollars) is \$80,000 if the summer weather is typical, \$50,000 if the weather is unusually dry, and \$20,000 if there is a severe storm that destroys much of his crop. Weather bureau records indicate that the probability is 0.70 of typical weather, 0.20 of unusually dry weather, and 0.10 of a severe storm. Let X denote the farmer's profit next year.

- (a) Construct a table with the probability distribution of X .
- (b) What is the probability that the profit is \$50,000 or less?
- (c) Find the mean of the probability distribution of X .

BEST WISHES
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