

Taibah University College of Computers science and Engineering		Date: SUN 24 Oct. 2021 Time: 12:30 — 1:30
STAT 301 CSNB1 – Midterm		Total Marks: 30

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

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

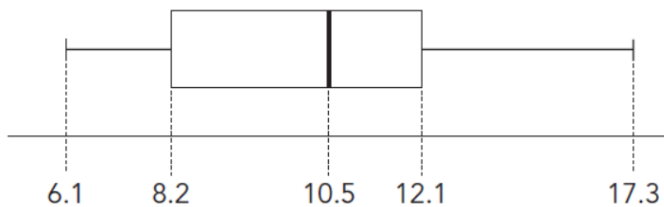
For questions 6 to 11, refer to the information shown here:



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

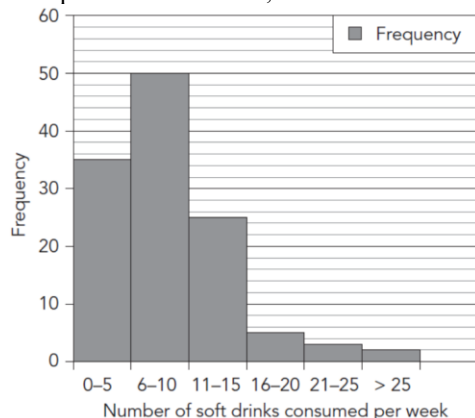
- 13
 - 15
- According to the dot plot, what is the greatest amount of time in minutes waited in line by a customer?
 - 15
 - 17
 - 19**
 - 20
 - The median is
 - 8
 - 9
 - 10**
 - 13
 - The first Quartile Q1 is
 - 4
 - 5
 - 6**
 - 7
 - The IQR is equal to
 - 8**
 - 6
 - 3
 - 14
 - To the nearest tenth**, 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) **$17/23$**
26. A quiz consists of five multiple-choice questions, each of which has four possible answer choices (A, B, C, and D), one of which is correct. Suppose that an unprepared student does not read the questions but simply makes a random guess for each question. What is the probability that the student will get all five questions wrong?

For any one question, there are 3 wrong answers out of 4 total answers, so the probability of guessing wrong on a particular question is $3/4$. Because the student is randomly guessing, each guess on a question is independent of the guesses on the other questions, so

$$P(\text{all five questions wrong}) = 3/4 * 3/4 * 3/4 * 3/4 * 3/4 = 243/1024$$
27. A box contains 30 identical-looking items, of which 3 are defective. If one item is selected at random, what is the probability that the item is defective?

$1/10$

BEST WISHES

Dr. Mostafa A. Elhosseini