

Show all necessary work clearly, neatly, systematically, and for full-points. Since part of this is a Test on Descriptive Statistics, the aesthetics aspect of your presentation is considered part of my grading. There are 105 points available

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The following are the Test 1 scores of my Elementary Algebra classes this semester. Consider this as a sample.

0 15 27 37 49 59 73 92  
 2 17 28 38 50 60 74 97  
 2 18 29 40 50 61 76 98  
 4 19 30 42 51 62 76 99  
 6 19 32 42 52 64 77  
 7 21 32 44 52 67 82  
 7 23 32 45 56 67 85  
 9 24 33 45 56 69 86  
 12 24 36 46 58 69 86  
 14 27 37 48 58 71 88

Data are sorted and rounded to the nearest unit for simplicity.

From the data, find:

1. (2) Median
  
2. (2) Mode
  
3. (2)  $Q_1$
  
4. (2)  $Q_3$
  
5. (1) Range

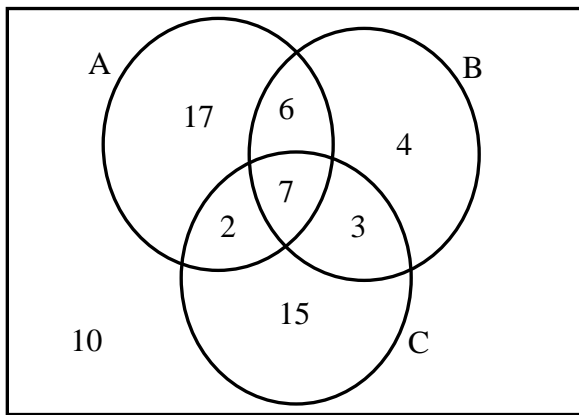
6. (7) Create a Frequency Distribution with 5 classes from the data above.

7. (7) Copy the Frequency Distribution in #6 below and extend with lower class limits, upper class limits, lower class boundaries, upper class boundaries, and relative frequency.

8. (11) Copy the Frequency Distribution in #6 below and extend to find the estimated mean, variance, and standard deviation. Round final answers to 3 decimal-places.
9. (5) From #8, what is the interval within 2 standard deviations of the mean? And list the outliers.
10. (11:5,3,3) A group chosen for a medical study in a college contains 70 participants with 24 smokers among them. There are 36 female participants and 5 of them smoke.
- Construct the Venn Diagram
  - In an experiment of selecting a participant from that group at random, write the notation and compute the probability of selecting a female smoker.
  - In an experiment of selecting a participant from that group at random, write the notation and compute the probability of selecting either a male participant or a non-smoker.

11. (7:2,5) Suppose  $N = 37, \sum x = 1719, \sum x^2 = 105747$ . Use proper symbols and compute for the mean and standard deviation of the data.

12. (19:2,2,3,3,3,3,3) The following Venn Diagram describes the number of elements in A , B, and C.  
Leave your answer in decimal.



Suppose one element is randomly selected from the diagram, find:

a.  $P(B) =$

e.  $P(B \cup \bar{C}) =$

b.  $P(A \cap C) =$

f.  $P(\bar{B} \cap \bar{C}) =$

c.  $P(A \cup B) =$

g.  $P(\bar{A} \cup \bar{C}) =$

d.  $P(A \cap \bar{B}) =$

13. (26:2,3,3,3,4,4,3,4) The following contingency table describe the distribution of smoking status of 150 participants based on their final education levels. First, find the total for each column and row.

	Never	Current	Former	Total
High school	14	15	20	
Associate	11	21	16	
Bachelor	12	9	22	
Total				

If a participant is randomly selected from that group. Write the notation and find the probability of selecting:  
Note: Leave your answer in simplified fraction.

- a. A non-smoker (currently not a smoker)
- b. A former smoker with bachelor degree
- c. A smoker or an associate
- d. A high school graduate but never smoke
- e. A former smoker without bachelor degree

If two participants are randomly selected from that group. Find the probability of selecting:  
Note: Leave your answer in decimal.

- f. Two participants without associate degree.
- g. At least one never smoke.

14. (3) Suppose  $P(A) = 0.57$ ,  $P(B) = 0.64$ , and  $P(A \cup B) = 0.8$ . Find  $P(A \cap B)$