

## MATH 1342

### Homework 1 (Sections 1.1 – 1.5)

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**Instructions:** Answer all questions through the EMCF tab of casa under the assignment named “Homework 1” before the deadline.

There is no “Submit” button. Your answers will be automatically submitted once the deadline arrives.

Assignments will be graded out of 20 points.

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#### 1. Section 1.1; Problem 2

- A. Population: All Children in the Country; Sample: All Children with last names beginning with M through R
- B. Population: All Students at the Elementary School; Sample: All Students at the Elementary School with last names beginning with M through R
- C. Population: All Students at the Elementary School with last names beginning with M through R; Sample: All Students at the Elementary School
- D. Population: All People; Sample: All Children attending the Elementary School
- E. Population: All Students at the Elementary School; Sample: All Students at the Elementary School that eat lunch

#### 2. Section 1.1; Problem 6

- A. Quantitative, Discrete
- B. Quantitative, Continuous
- C. Categorical
- D. Elemental
- E. None of the Above Choices

3. Section 1.1; Problem 9

- A. Quantitative, Discrete
- B. Quantitative, Continuous
- C. Categorical
- D. Elemental
- E. None of the Above Choices

4. Section 1.2; Problem 4

- A. Mean: 79.2; Median: 7.92
- B. Mean: 6.25; Median: 7.92
- C. Mean: 12.23; Median: 6
- D. Mean: 7.92; Median: 6.25
- E. Mean: 8; Median: 6

5. Section 1.3; Problem 4

- A. Mean: 2.133; Variance: 3.267; Standard Deviation: 10.673
- B. Mean: 2.133; Variance: 1.344; Standard Deviation: 1.807
- C. Mean: 2.133; Variance: 3.267; Standard Deviation: 1.807
- D. Mean: 3.000; Variance: 1.807; Standard Deviation: 3.267
- E. Mean: 3.000; Variance: 3.267; Standard Deviation: 1.807

6. Section 1.4; Problem 4 (Range; IQR; 70<sup>th</sup> Percentile)

A. Range: 250 to 1230; IQR: 305; 70<sup>th</sup> Percentile: 12

B. Range: 980; IQR: 305; 70<sup>th</sup> Percentile: 11.2

C. Range: 980; IQR: 305; 70<sup>th</sup> Percentile: 840

D. Range: 980; IQR: 472.5; 70<sup>th</sup> Percentile: 12

E. Range: 980; IQR: 472.5; 70<sup>th</sup> Percentile: 840

Use the following for problems 7 and 8:

Below is a stem and leaf diagram of the of exam grades in a college class.

The decimal point is 1 digit(s) to the right of the |

5|3 4 6 7

6|1 8 9 9

7|3 4 5 5 7 8 8 9

8|0 0 1 4 5 8 8

9|0 1 1 3 5 7 7 8

7. Find the median (Use the same Answer Choices for 7 & 8)

8. Find the mean

A. 7.346

B. 78.516

C. 7.852

D. 79

E. 77

9. Section 1.5; Problem 2 (Range of Outliers)

- A. Outliers occur at values less than 44 or greater than 108
- B. Outliers occur at values less than 56 or greater than 96
- C. Outliers occur at values less than 68 or greater than 84
- D. Outliers occur at values between 44 and 108
- E. Outliers cannot occur in a distribution of this type

Use the following for questions 10 – 16:

Using R Studio and the data set *precip* determine the following.

**Precip** - The average amount of precipitation (rainfall) in inches for each of 70 United States (and Puerto Rico) cities. *Hint*: the variable *precip* is already downloaded into R studio. To determine how to get the following see [R studio quick reference guide](#).

10. Calculate the Mean

11. Calculate the Median

12. Calculate the Standard Deviation

Choices for Questions 10, 11, 12:

- A. 13.707      B. 187.882      C. 3.702      D. 34.886      E. 36.6

13. Determine the Five Number Summary

- A. 13.7; 29.1; 34.9; 36.6; 42.8
- B. 7.0; 29.1; 36.6; 42.8; 67.0
- C. 7.0; 29.1; 34.9; 42.8; 67.0
- D. 3.7; 13.7; 34.9; 36.6; 187.9
- E. 7.0; 34.9; 36.6; 39.8; 67.0

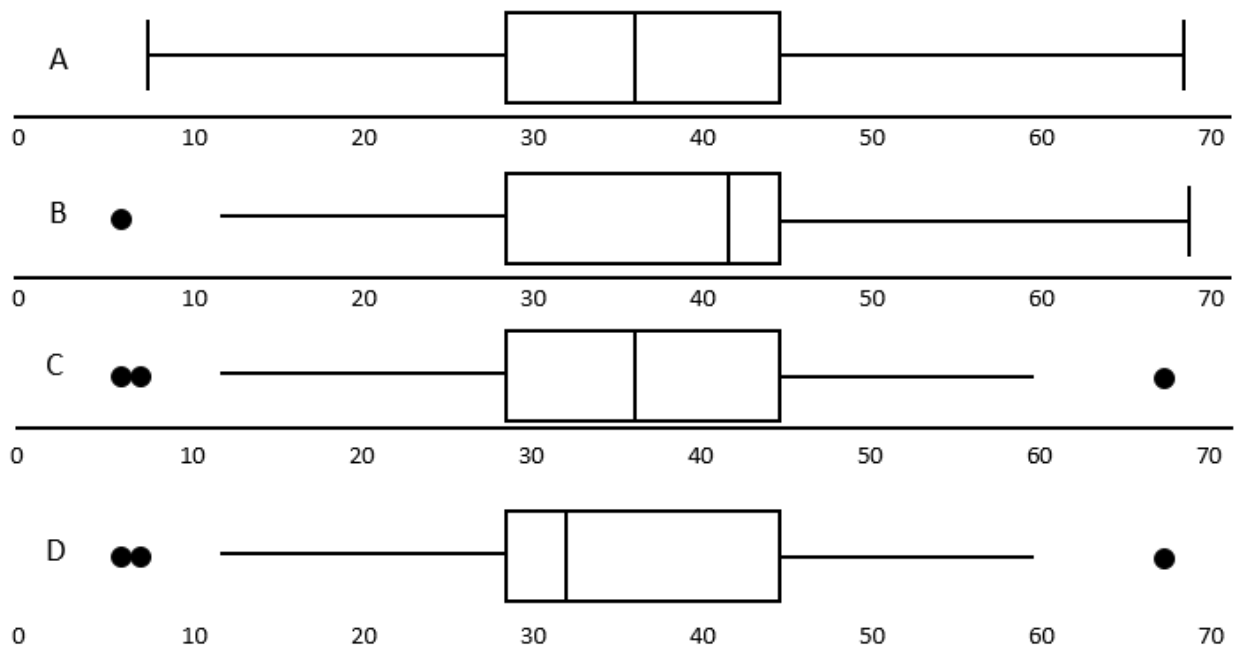
14. Calculate the Interquartile Range

- A. 13.7
- B. 71.9
- C. 63.4
- D. 60.0
- E. 6.2

15. Determine the Range for Outliers

- A. Less than 8.55 or Greater than 56.3
- B. Less than 13.5 or Greater than 42.8
- C. Less than 13.5 or Greater than 80.5
- D. Less than 8.55 or Greater than 63.35
- E. Less than 15.6 or Greater than 56.3

16. Identify the correct Box and Whisker Plot (No Choice E for this Question)



17. Which best describes the shape of the distribution?

- A. Nearly Symmetric
- B. Right Skewed
- C. Left Skewed
- D. Uniform
- E. Bimodal

18. Circle which is the most resistant to outliers?

- A. mean
- B. median
- C. range
- D. variance
- E. none of these

19. A set of data is found to have a sample variance of 81. Suppose that 16 is added to each of the numbers in the data set. Circle the standard deviation of the new data set?

- a. 4
- b. 9
- c. 13
- d. 81
- e. 97

20. Two employees of a company have to file expense reports for their travel. The first had taken 7 trips with a mean trip cost of \$750. The second took a total of 5 trips with a mean cost of \$1200. The accounting department wants to determine the mean cost of all the trips that these two employees took. What is the mean cost of all 12 trips?

Proposed Solution:

Since we have two costs (one for each employee) we can find the mean cost of both employees by the following computation:

$$(750 + 1200) / 2 = 975$$

What was done wrong in the proposed solution?

- A. Since there are 12 total trips, the calculation should be  $(750 + 1200) / 12$
- B. Since there are 7 trips with a mean of 750 and 5 with a mean of 1200, the calculation should be  $(7 \times 750 + 5 \times 1200) / 12$
- C. Since we do not have the original data from each of the 12 trip costs, a mean cost cannot be calculated.
- D. Since the two costs are not close to one another, a median should be used.
- E. The proposed calculation is correct.