

MATH 2050
QUIZ 1

NAME _____

Be neat. Be clear. Use a pencil.

[1]. Below is a random sample of final grades received by students in Dr. Fairgrade's classes during the last few years. The sample size is $n = 55$.

Grades

80 88 87 96 88 79 79 79 87 79 79
90 75 70 92 87 77 71 77 75 94 90
82 68 73 60 59 94 84 81 82 88 95
82 89 95 88 82 96 86 91 74 94 86
84 81 73 38 76 65 96 94 79 80 98

Draw a stem-and-leaf plot for the data. Use two stems per first digit.

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[2]. Find the 5-number summary for the data in problem 1.

Minimum = _____ Q_1 = _____ Median = _____

Q_3 = _____ Maximum = _____

3. Find the mean and the standard deviation for the data in problem 1.

$$\bar{x} = \underline{\hspace{2cm}}$$

$$s = \underline{\hspace{2cm}}$$

4. Draw a (frequency) histogram of the grades in problem 1. (Use 7 classes).

5. The distribution of scores on a calculus test was obtained and is listed below:
Estimate the mean score using the class midpoints and respective frequencies.
Round your answer to one decimal place.

Class limits	Frequency
65 – 69	2
70 – 74	4
75 – 79	10
80 – 84	8
85 – 89	6

estimated mean =

6. A data set has a mean of 115 and a standard deviation of 11. According to Chebyshev's theorem, at least $\frac{3}{4}$ of the data will fall between what values?

- a. 49 and 181
- b. 110 and 120
- c. 71 and 159
- d. 104 and 126
- e. 93 and 137

7. Suppose the ACT has a mean score of 20.1 and a standard deviation of 5.1, and the SAT has a mean score of 1015 and a standard deviation of 147. If Rhonda scored 24 on the ACT and Yolanda scored 1134 on the SAT, who did relatively better and what was her z -score?

8. If a sample is collected in such a way that certain elements of the population are systematically favored over others, the sample is said to be _____.

9. A set of units under statistical investigation is called a _____.

10. An extremely high or low value in a data set is called an _____.

11. Refer to the data in problem 1. Is the value 38 an outlier according the IQR rule of thumb? Explain.

[12]. Suppose a group of 10 employees work an average of 45 hours per week with standard deviation 3 hours per week. If each employee earns \$12 per hour, what is the average weekly payroll for the group of 10 employees?

[12b]. (BONUS) Suppose a group of 10 employees work an average of 45 hours per week with standard deviation 3 hours per week. If each employee earns \$12 per hour, what is the standard deviation for the weekly payroll for the group of 10 employees? (Assume the employees weekly work hours are independent.)

[13]. Suppose the maximum in a data set was recorded incorrectly. Which measure of central tendency is most likely changed if the correct value replaces the incorrect value?

- (a) median
- (b) mean
- (c) mode

[14]. According to the empirical rule, the area under the bell-shaped normal curve that lies within two standard deviations of the mean is approximately what percent?

- a. 68%
- b. 99.7%
- c. 75%
- d. 95%
- e. 50%

[15]. Suppose a data set of size $n = 5$ had a mean 20 and include the following data:

12, 30, 5, 50

Find the missing data value.

answer: _____