East Los Angeles College 24 ✓
Department of Mathematics
Math 227
Test 1
Solutions

Show work for credit.

Question- How many absences do you have in your Statistics class? The following data was sampled.

0, 4, 3, 3, 2, 0, 1

1. Determine the mean of this data approximated to the nearest tenths.

$\bar{x} = \frac{\Sigma x}{n}$; $\bar{x} = \frac{13}{7}$

$\bar{x} \approx 1.9$ ✓

2. Determine the median of this data.

0, 0, 1, 2, 3, 3, 4

✓

3. Determine the mode for this data.

0, 3 Bi modal

✓ ✓

4. Determine the variance for this data approximated to the nearest tenths.

$var = \frac{n\Sigma x^2 - (\Sigma x)^2}{n(n-1)}$; $var = \frac{7 \cdot 39 - 13^2}{7(6)}$

$var \approx 2.5$ ✓

5. Determine the standard deviation for this data approximated to the nearest tenths.

$SD = \sqrt{var}$; $SD = \sqrt{2.5}$

$SD \approx 1.6$

✓

6 ✓

Question- How long did you wait in line to buy your Statistics Textbook? The following data was gathered in minutes.

3, 2, 3, 11, 10, 4, 4, 5, 0, 2, 22, 3, 2, 0, 7, 21, 22, 4, 5, 5, 5, 8, 12, 15, 12, 8, 20, 4, 6, 12, 16, 12, 14, 20, 8, 16, 8, 14, 23, 14, 20, 22, 20, 12, 23, 16, 22, 10

6. Create a relative frequency table and organize your data into bins with a bin width of 6 and the first bin having a lower bin limit of 0. Approximate each relative frequency to the nearest thousandths.

See work for tally

	Data	f	rf	
✓	0 to 5	16	0.333	✓
✓	6 to 11	9	0.188	✓
✓	12 to 17	12	0.250	✓
✓	18 to 23	11	0.229	✓

8 ✓

Answer the following questions regarding your data while using a relative frequency approximated to the nearest thousandths.

7. What percent of statistics students waited at least 6 minutes?

$18.8 + 25 + 22.9$ | 66.7% | ✓

8. What percent of statistics students waited less than 18 minutes?

$25 + 18.8 + 33.3$ | 77.1% | ✓

9. What percent of statistics students waited between 6 and 17 minutes?

$18.8 + 25$ | 43.8% | ✓

10. What percent of statistics students waited at no more than 11 minutes?

$25.4 + 16.7$ | 52.1% | ✓

11. What is the mean for this distribution of grouped data? Approximate to the nearest tenths.

$\bar{x} = \frac{\Sigma fm}{n}$; $\bar{x} = \frac{516}{48}$ | $\bar{x} \approx 10.8$ | ✓

12. What is the variance for this distribution of grouped data? Approximate to the nearest tenths.

$var = \frac{n \Sigma fm^2 - (\Sigma fm)^2}{n(n-1)}$; $var = \frac{48 \cdot 7896 - 516^2}{48 \cdot 47}$

| $var \approx 50$ |

13. What is the standard deviation for this distribution? Approximate to the nearest tenths.

$SD = \sqrt{var}$; $SD = \sqrt{50}$ ✓ 7ν

| $SD \approx 7.1$ |

14. Compute the GPA for the following report card. Approximate your answer to the nearest hundredths.

Course	Units	Grade
Statistics	4	A
English	3	D
PE	1	B
Chemistry	5	F
Health	2	C

GPA

$$\bar{\omega} = \frac{\Sigma \omega x}{\Sigma \omega}$$

$$\bar{\omega} = \frac{25}{15} \quad \checkmark \checkmark$$

$$\bar{\omega} \approx 1.73 \quad \checkmark$$

x	x^2
0	0
4	16
3	9
3	9
2	4
0	0
1	1

Sum **13** **39**

Data	f	rf	percent	m	fm	fm^2
0 to 5	16	0.333	33.3	2.5	40	100
6 to 11	9	0.188	18.8	8.5	76.5	650.25
12 to 17	12	0.250	25.0	14.5	174	2523
18 to 23	11	0.229	22.9	20.5	225.5	4622.75

Sum **48** **516** **7896**

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Course	Units	Grade	x	wx
Statistics	4	A	4	16
English	3	D	1	3
PE	1	B	2	2
Chemistry	5	F	0	0
Health	2	C	2	4

Sum **15** **25**