East Los Angeles College
Department of Mathematics
Math 227
Test 1

S60 ✓
87 ✓

Show work for credit.

How many absences do you have in your Statistics class?

The following data was collected in days.

1, 4, 2, 0, 1, 1, 0, 2, 4, 6

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

$\bar{x} = \frac{\Sigma x}{n}$; $\bar{x} = \frac{21}{10}$

$\boxed{\bar{x} \approx 2.1}$ ✓

2. Determine the median of this data.

median = $\frac{1+2}{2}$

0, 0, 1, 1, (1, 2), 2, 4, 4, 6

$\frac{3}{2}$ | 1.5 ✓

3. Determine the mode for this data.

$\boxed{\text{Mode} = 1}$ ✓

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

$\text{Var} = \frac{n\,\Sigma x^2 - (\Sigma x)^2}{n(n-1)}$; $\text{Var} = \frac{10 \cdot 74 - 21^2}{10 \cdot 9}$

$\boxed{\text{Var} \approx 3.9}$ ✓

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

$SD = \sqrt{\text{Var}}$; $SD = \sqrt{3.9}$ ✓ SL

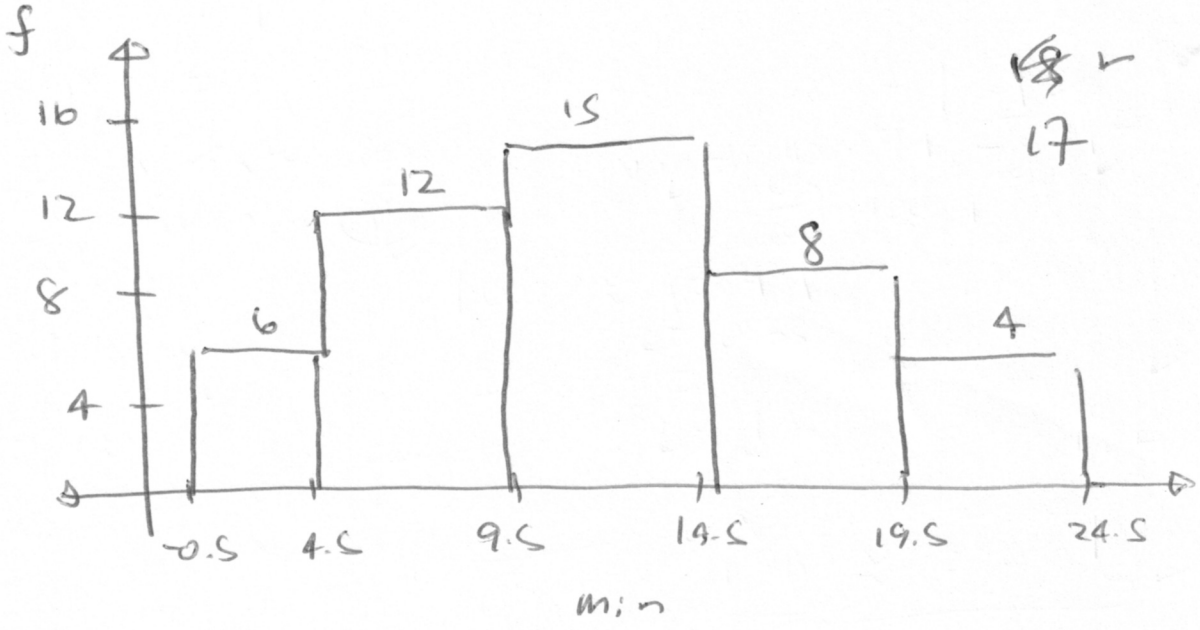
$\boxed{SD = 2.0}$

How long did you wait in line (minutes) to buy your Statistics Textbook?

The following data was gathered and organized into a frequency table. Fill in the table below and approximate the **relative frequency** to the nearest **thousandths**.

Min	f	rf	percent	mid
0 to 4	6	0.133	13.3	2
5 to 9	12	0.267	26.7	7
10 to 14	15	0.333	33.3	12
15 to 19	8	0.178	17.8	17
20 to 24	4	0.089	8.9	22

6. Draw a Histogram representing the frequency table above.



Answer the following questions regarding your frequency table above.

7. What percent of statistics students waited at least 5 minutes?

$26.7 + 33.3 + 17.8 + 8.9 \approx \boxed{86.7\%}$ ✓

8. What percent of statistics students waited less than 15 minutes?

$13.3 + 26.7 + 33.3 \approx \boxed{73.3\%}$ ✓

9. What percent of statistics students waited between 5 and 14 minutes?

$26.7 + 33.3 \approx \boxed{60\%}$ ✓

10. What percent of statistics students waited at no more than 19 minutes?

$13.3 + 26.7 + 33.3 + 17.8 \approx \boxed{91.1\%}$ ✓

11. What percent of statics students waited more than 9 minutes?

$33.3 + 17.8 + 8.9 \approx \boxed{60\%}$ ✓

12. What is the mean wait time for textbooks? Approximate your answer to the nearest tenths.

$\bar{x} = \frac{\Sigma fm}{\Sigma f} \therefore \bar{x} = \frac{500}{45}$ ✓

$\boxed{\bar{x} \approx 11.1}$

13. What is the standard deviation for the wait time for textbooks? Approximate your answer to the nearest tenths.

8 ✓

$Var = \frac{n \Sigma fm^2 - (\Sigma fm)^2}{n(n-1)}$ ✓ $\quad S = \sqrt{Var}$

$Var = \frac{45 \cdot 7020 - 500^2}{45 \cdot 44}$ ✓ $\quad S = \sqrt{33.3}$

$Var \approx 33.3$ $\quad \boxed{S \approx 5.8}$

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

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

$$\bar{w} = \frac{\Sigma wx}{\Sigma w} \quad \checkmark$$

$$\bar{w} = \frac{27}{15} \quad \checkmark$$

$$\bar{w} \approx 1.8$$

Grading on a curve?

15. Test scores were gathered and a mean was determined to be 108.6 with a standard deviation of 18.9.

	Score	Z-Score	Curved Grade
Joe	120	0.60	C
Mary	100	-0.46	C
Blanton	75	-1.78	D
Marcel	138	1.56	B
Angel	150	2.19	A
Alexis	60	-2.57	F

14

$$z = \frac{x - 108.6}{18.9}$$

How much sleep did you get last night?

The following data was collected in hours.

8, 0, 4, 6, 6, 8, 7, 4, 6, 7,8 ,4, 5, 5, 5, 8, 3, 5, 7, 8

Determine the following.

16. $Q_1 = P_{25} = \frac{4+5}{2}$

$L = \frac{25}{100} \cdot 20$ (4.5)

$L = \frac{1}{4} \cdot 20$ ✓

$L = 5$; ✓

17. $Q_2 = P_{50} = \frac{6+6}{2}$

$L = \frac{50}{100} \cdot 20 = 6$

$L = \frac{1}{2} \cdot 20$ ✓

$L = 10$ ✓

18. $Q_3 = P_{75} = \frac{7+8}{2}$

$L = \frac{75}{100} \cdot 20$ (7.5)

$L = \frac{3}{4} \cdot 20$ ✓

$L = 15$ ✓

19. $D_1 = P_{10} = \frac{3+4}{2}$

$L = \frac{10}{100} \cdot 20 = 3.5$

$L = \frac{1}{10} \cdot 20$ ✓

$L = 2$ ✓

20. $D_9 = P_{90} = \frac{8+8}{2}$

$L = \frac{90}{100} \cdot 20$ (8) ✓

$L = 0.9 \cdot 20$ [8] ✓

$L = 18$

$L = 16$ ✓

21. $P_{65} = 13$ ✓

$L = \frac{65}{100} \cdot 20$ [7]

$L = 0.65 \cdot 20$ ✓

$L = 13$ 13

12

$L = 13$

$\frac{7+7}{2}$

16)

Data
8
0
4
6
6
8
7
4
6
7
8
4
5
5
5
8
3
5
7
8

L	Sorted Data
1	0
2	3
3	4
4	4
5	4
6	5
7	5
8	5
9	5
10	6
11	6
12	6
13	7
14	7
15	7
16	8
17	8
18	8
19	8
20	8

1)

x	x^2
1	1
4	16
2	4
0	0
1	1
1	1
0	0
2	4
4	16
6	36
Sum 21	79

5)

Min	f	m	fm	fm^2	rf	Percent
0 to 4	6	2	12	24	0.133	13.3
5 to 9	12	7	84	588	0.267	26.7
10 to 14	15	12	180	2160	0.333	33.3
15 to 19	8	17	136	2312	0.178	17.8
20 to 24	4	22	88	1936	0.089	8.9
Sum	45		500	7020	1.000	100.0

14)

Course	Units	Grade	x	wx
Statistics	4	B	3	12
English	3	C	2	6
PE	1	A	4	4
Chemistry	5	D	1	5
Health	2	F	0	0
Sum	15			27

15

Name	Score	z-score	Curve
Joe	120	0.60	C
Mary	100	-0.46	C
Blanton	75	-1.78	D
Marcel	138	1.56	B
Angel	150	2.19	A
Alexis	60	-2.57	F

mean 108.6

sd 18.9