East Los Angeles College
Department of Mathematics

72✓

Math 227TTH

Test 1

Show work for credit.

How many absences do you have in your Statistics class?

The following data was collected in days.

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

1. Determine the mean of this data approximated to the nearest tenths.
2. Determine the median of this data.
3. Determine the mode for this data.
4. Determine the variance for this data approximated to the nearest tenths.
5. Determine the standard deviation for this data approximated to the nearest tenths.

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	m
0 to 4	8	0.258	25.8	2
5 to 9	10	0.323	32.3	7
10 to 14	6	0.194	19.4	12
15 to 19	4	0.129	12.9	17
20 to 24	3	0.097	9.7	22

15✓

Using the table above, what percent of the students waited for:

6. At least 5 minutes?
7. No more than 14 minutes?
8. Between 5 and 19 minutes?
9. More than 14 minutes?
10. Less than 5 minutes?

11. What is the mean for this distribution? Approximate to the nearest tenths
12. What is the variance for this distribution? Approximate to the nearest tenths
13. What is the standard deviation for this distribution? Approximate to the nearest tenths.
14. Create a Histogram describing this distribution.
15. Create a frequency polygon describing this distribution.

---

16. Determine who had the better GPA for the semester. Hannah Montana or Miley Cyrus? Approximate the GPA's to the nearest hundredths.

Hannah Montana

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

Miley Cyrus

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

Grading on a curve?

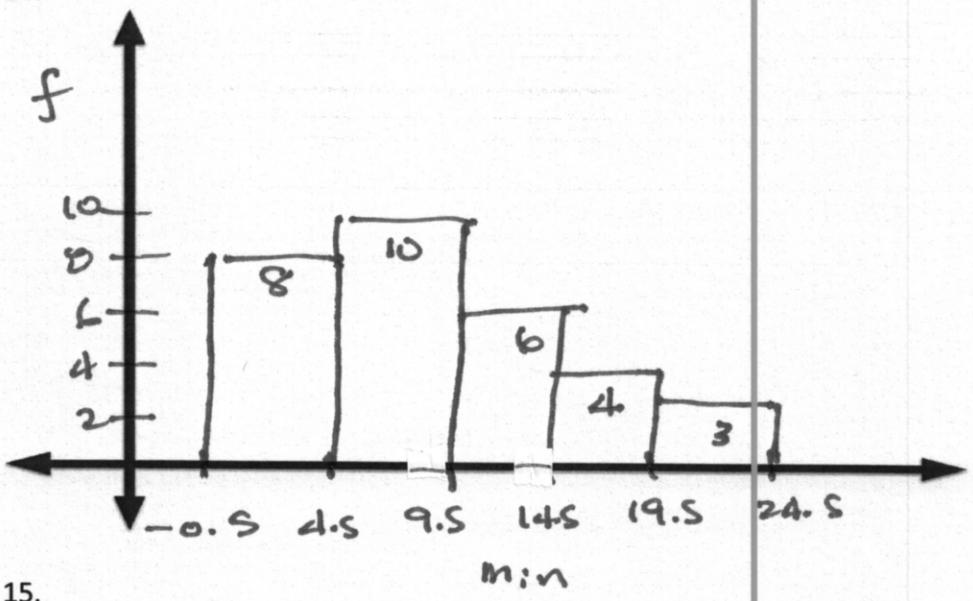
17. Test scores were gathered and a mean was determined to be 100.4 with a standard deviation of 24.6. Approximate z-scores to the nearest hundredths.

Name	Test Score	Z-Score	Standard Grade	Curved Grade
Maria	150	2.02	A	A
Jessica	138	1.53	A	B
Eric	123	0.92	B	C
Lyle	110	0.39	C	C
Francis	92	−0.34	D	C
Sam	36	−2.62	F	F

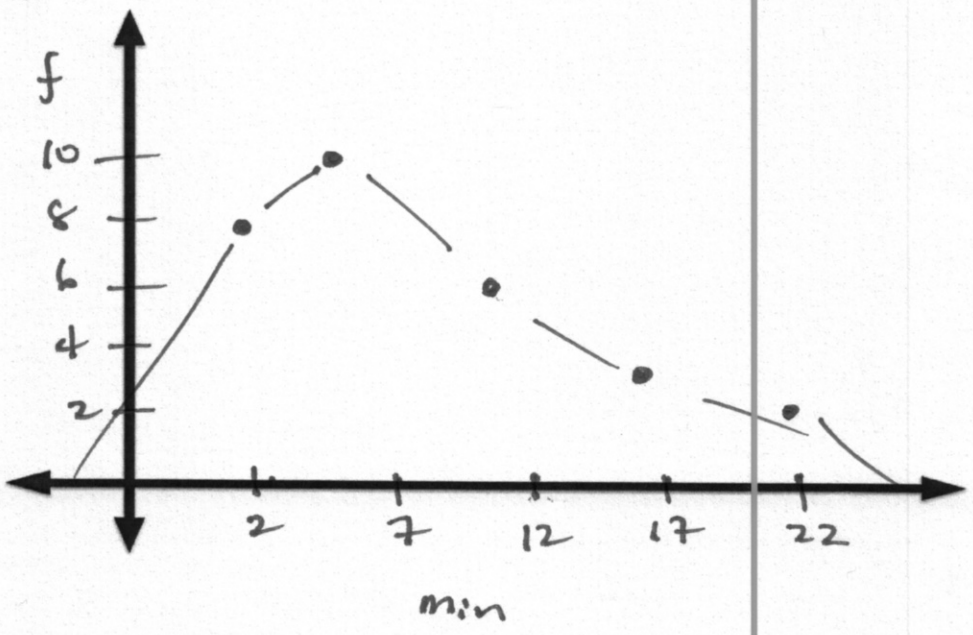
18r

Graph Paper

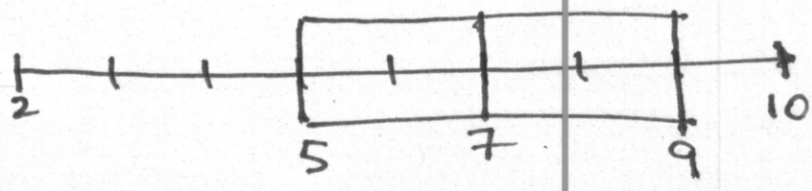
14.



15.



25.



6

Answer Sheet

1	1.8 ✓	14	Use Graph
2	1 ✓	15	Use Graph
3	0 ✓	16	Hannah 2.67 * — — Miley 2.53 —
4	4.2 ✓	17	See Table
5	2.0 ✓	18	$L \approx 4$; $P_{10} = 4$ —
6	74.3% ✓	19	$L \approx 31$; $P_{90} = 10$ =
7	77.5% —	20	$L \approx 9$; $Q_1 = 5$ =
8	64.6% ✓	21	$L = 17$; $D_5 = 7$ =
9	22.6% ✓	22	$L \approx 26$; $Q_3 = 9$ =
10	25.8% ✓	23	$L = 21$; $D_6 = 7$ =
11	9.4 ✓	24	2, 5, 7, 9, 10 = =
12	41.5 ✓	25	Use Graph
13	6.4 —	26	Solutions

23 ✓

72

Speed Dating

The following are ratings (scale of 1 to 10) for speed dating of males by females.

Rating
8
5
9
4
5
8
10
2
6
8
10
9
5
6
6
7
4
10
7
7
3
8
5
10
9
7
5
3
4
4
6
9
7
9

Locator	Sorted Rating
1	2
2	3
3	3
4	4
5	4
6	4
7	4
8	5
9	5
10	5
11	5
12	5
13	6
14	6
15	6
16	6
17	7
18	7
19	7
20	7
21	7
22	8
23	8
24	8
25	8
26	9
27	9
28	9
29	9
30	9
31	10
32	10
33	10
34	10

Determine the following:

18. P_{10} 19. P_{90} 20. Q_1 21. D_5 22. Q_3 23. D_6

24. Determine the 5-Number Summary (Min, First Quartile, Second Quartile, Third Quartile, Max)

25. Construct a box plot and describe the distribution in terms of skewness.

26. What's your name?

x	x^2
6	36
2	4
0	0
1	1
1	1
0	0
2	4
4	16
0	0

Sum 16 62

min	f	rf	Percent	mid	fm	fm^2
0 to 4	8	0.258	25.8	2	16	32
5 to 9	10	0.323	32.3	7	70	490
10 to 14	6	0.194	19.4	12	72	864
15 to 19	4	0.129	12.9	17	68	1156
20 to 24	3	0.097	9.7	22	66	1452

Sum 31 292 3994

Hannah

Course	Units (w)	Grade	x	wx
Statistics	4	B	3	12
English	3	C	2	6
PE	1	F	0	0
Chemsistry	5	A	4	20
Health	2	D	1	2

Sum 15 40

Miley

Course	Units (w)	Grade	x	wx
Statistics	4	A	4	16
English	3	C	2	6
PE	1	D	1	1
Chemsistry	5	B	3	15
Health	2	F	0	0

Sum 15 38

Name	Test Score	z-Score	Standard Grade	Curved Grade
Maria	150	2.02	A	A
Jessica	138	1.53	A	B
Eric	123	0.92	B	C
Lyle	110	0.39	C	C
Francis	92	-0.34	D	C
Sam	36	-2.62	F	F

Mean **100.4**
SD **24.6**

z=(x-mean)/SD

Points	Standard Grade
150 to 135	A
134 to 120	B
119 to 105	C
104 to 90	D
89 to 0	F

Math 227mw Test 1

(1) $\bar{x} = \frac{\Sigma x}{n}$; $\bar{x} = \frac{16}{9}$; $\bar{x} \approx 1.8$

(2) median

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

(3) mode = 0

(4) $\text{var} = \frac{n\Sigma x^2 - (\Sigma x)^2}{n(n-1)}$; $\text{var} = \frac{9 \cdot 62 - 16^2}{9 \cdot 8}$

$\text{var} \approx 4.2$

(5) $s = \sqrt{\text{var}}$;

$s = \sqrt{4.2}$

$s \approx 2.0$

(6) at least 5 min

$32.3 + 19.4 + 12.9 + 9.7 \approx 74.3\%$

(7) No more than 14 min

$25.8 + 32.3 + 19.4 \approx 77.5\%$

(10) less than 5

25.8%

(8) Between 5 and 19

$32.3 + 19.4 + 12.9 \approx 64.6\%$

(9) more than 14

$12.9 + 9.7 \approx 22.6\%$

(11) $\bar{x} = \frac{\Sigma fm}{n}$; $n = \Sigma f$

$\bar{x} = \frac{292}{31}$; $\bar{x} \approx 9.4$

(12) $var = \frac{n \Sigma fm^2 - (\Sigma fm)^2}{n(n-1)}$

$Var = \frac{31 \cdot 3994 - 292^2}{31 \cdot 30}$; $var \approx 41.5$

(13) $S = \sqrt{var}$; $S = \sqrt{41.5}$; $S \approx 6.4$

(14) See Graph (15) See Graph

(16) $\bar{w} = \frac{\Sigma wx}{\Sigma w}$; $\bar{w} = \frac{40}{15}$; $\bar{w} \approx 2.67$

* Hannah

$\bar{w} = \frac{\Sigma wx}{\Sigma w}$; $\bar{w} = \frac{38}{15}$; $\bar{w} \approx 2.53$

Miley

(18) P_{10} $\boxed{P_{10} = 4}$

$L = \frac{k}{100} \cdot n$

$L = \frac{10}{100} \cdot 34$

$L = 3.4$

$L \approx 4$

(19) P_{90} $\boxed{P_{90} = 10}$

$L = \frac{90}{100} \cdot 34$

$L = 30.6$

$L \approx 31$

(20) $Q_1 = P_{25}$ $\boxed{Q_1 = 5}$

$L = \frac{25}{100} \cdot 34$

$L = 8.5$

$L \approx 9$

(21) $D_5 = P_{50}$ $\quad P_{50} = \frac{7+7}{2}$

$L = \frac{50}{100} \cdot 34$ $\quad P_{50} = 7$

$L = 17$

(22) $Q_3 = P_{75}$ $\quad P_{75} = 9$

$L = \frac{75}{100} \cdot 34$

$L = 25.5$

$L \approx 26$

(23) $D_6 = P_{60}$; $\quad D_6 = 7$

$L = \frac{60}{100} \cdot 34$

$L = 20.4$

$L \simeq 21$

(24) 2, 5, 7, 9, 10

(25)