Name: Date: Key Hour:

Algebra 1
WS Unit 5 Test Review

1. Find the mean, median and mode of each data set.
   a. 3, 5, 1, 5, 1, 1, 2, 3, 15

1 1 1 2 3 3 5 5 15
Q_1 Q_3

$\bar{x} = 4$
med = 3
mode = 1

   b. 14, 15, 3, 15, 14, 14, 18, 15, 8, 16

$\bar{x} = 13.2$
med = 14.5
mode = 14, 15

2. Determine if there are any outliers in the data sets from question #1. If so, what are they? (1.5) IQR Test
   a. Data Set #1:

IQR
$Q_3 - Q_1$
5 − 1
IQR = 4

$Q_1 - (1.5)(IQR)$
$1 - (1.5)(4)$
$1 - 6$
-5
Lower Bound.

$Q_3 + (1.5)IQR$
$5 + (1.5)4$
$5 + 6$
11
Upper Bound.

15 is an outlier

   b. Data Set #2:

$Q_3 = 15$
$Q_1 = 14$
15 − 14
IQR = 1

$14 - (1.5)(1)$
12.5

15 + 1.5
16.5

8, 3, 18 are outliers

3. Find the mean, median and mode of the changes in stock value from the table below. If the value of the stock increases by $4.28, how does this affect the mean, median and mode?

Changes in Stock Value (dollars)			
1.05	2.03	−13.78	−2.41
2.64	0.67	4.02	1.39
0.66	−0.28	−3.01	2.20

Mean: $-0.401\overline{6}$

Median: 0.86

Mode: no mode

−13.78 −3.01 −2.41 −0.28

.66 .67 1.05 1.39 2.03 2.20 2.64 4.02

0.86

New
$\bar{x} = 3.878\overline{3}$
med = 5.14
mode = no mode

−4.82

4. The range and standard deviation of a data set are listed below. If each value in the data set is multiplied by 2.5, how does this change the range and standard deviation?

Range: 105 (2.5)
Standard Deviation: 4.6 (2.5)

Range = 262.5
Stand Dev. = 11.5

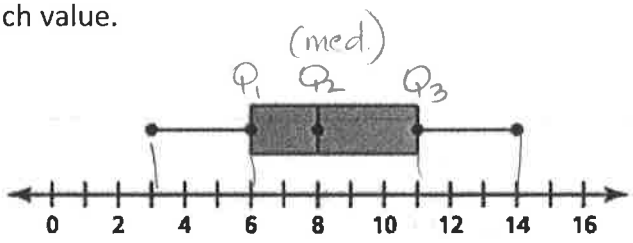
the Range & Stand Dev. both get mult by 2.5

5. Find the standard deviation of each data set.
   a. 141, 116, 117, 135, 126
   b. 2, 5, 1, 6, 8

SD = 9.818

SD = 2.5768

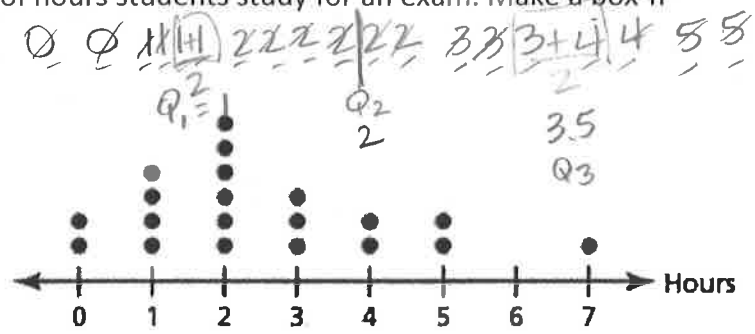
6. Given the box-n-whisker plot below – find each value.

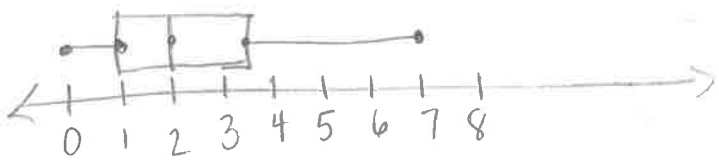


   a. Least value 3
   b. Greatest value 14
   c. Q1 6
   d. Median 8
   e. Q3 11
   f. Range 14-3 = (11)
   g. IQR $Q_3 - Q_1$ = 11-6 = (5)

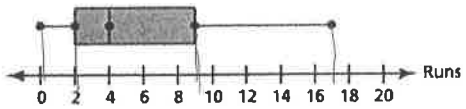
7. The dot plot represents the number of hours students study for an exam. Make a box-n-whisker plot to represent the data.

Min = 0
Q_1 = 2
Q_2 = 2
Q_3 = 3.5
Max = 7





8. A baseball player scores 101 runs in a season. The box-n-whisker plot represents the number of runs the player scores against different opposing teams.



a. Find and interpret the range and IQR of the data.

Range $17-0 = 17$ IQR $= Q_3 - Q_1$ $9-2 = 7$

b. Describe the distribution of the data.

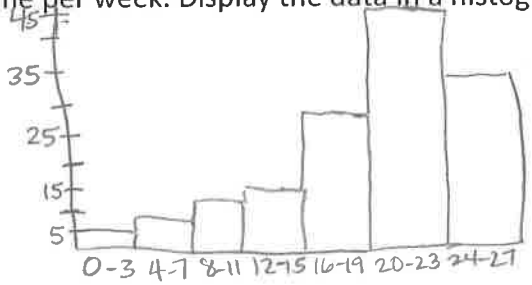
skewed right

c. Is the data more spread out between Q1 and Q2 or between Q2 and Q3?

between Q_2 and Q_3

9. The frequency table shows the results of a survey that asked people how many hours they spent online per week. Display the data in a histogram. Describe the shape of the data.

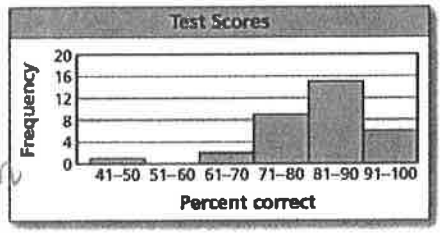
Skewed left



Hours online	Frequency
0–3	5
4–7	7
8–11	12
12–15	14
16–19	26
20–23	45
24–27	33

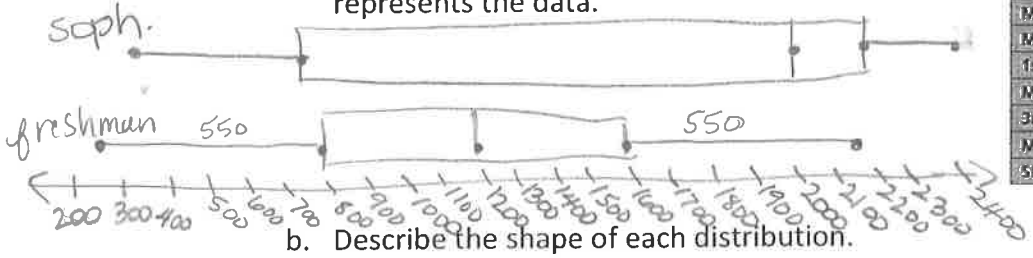
10. Describe the data displayed in the histogram. What is the best measure to used based on the shape?

Skewed left
Best Measure of Center
Median
Best Measure of Spread/Variation
5# summary



11. The table shows the results of a survey that asked freshmen and sophomores how many songs they have downloaded on their iPhone.

a. Make a double box-n-whisker plot that represents the data.



	Freshmen	Sophomores
Survey size	45	54
Minimum	250	360
Maximum	2150	2400
1st Quartile	800	780
Median	1200	2000
3rd Quartile	1600	2200
Mean	1150	1650
Standard deviation	420	480

b. Describe the shape of each distribution.

Sophomores skewed left

freshman - symmetric

12. A student scored 75, 88 and 95 respectively on their first 3 unit exams. What do they have to score on their 4th exam to have an average of 87?

$(4)\ 87 = \frac{75+88+95+x}{4} \cdot 4$

$348 = 75+88+95+x$

$348 = 258 + x$

$90 = x$

13. A card is drawn from a standard deck and returned to the deck before the next card is drawn. Find the probability that the first card is a spade and the second card is red.

replaced

$\frac{1}{4}\frac{13}{52} \cdot \frac{26}{52_2}{}^{1} = \boxed{\frac{1}{8}}$

14. A study of consumer smoking habits includes 200 married people (54 of whom smoke), 100 divorced people (38 of whom smoke), and 50 single people (11 of whom smoke). If one person is randomly selected, find the probability of getting a smoker or someone who is divorced.

$P(\text{smoker}) + P(\text{divorced}) - P(\text{divorced smoker})$

$\frac{103}{350} + \frac{100}{350} - \frac{38}{350} = \frac{165}{350} = \frac{33}{70}$

	M	D	S	tot
smoke	54	38	11	103
non sm	146	62	39	247
tot.	200	100	50	350

15. Two cards are drawn without replacement from a standard deck. Find the probability that:

a. the first card is a heart and the second card is red.

$\frac{1}{4}\frac{13}{52} \cdot \frac{26}{51}{}^{13} = \boxed{\frac{13}{102}}$

2

b. both cards are kings $\frac{1}{13}\frac{4}{52} \cdot \frac{3}{51}{}^{1}{}_{17} = \frac{1}{221}$

6 total

16. A box contains 4 red and two yellow tickets. Three tickets are randomly selected from the box, one by one, with replacement. What is the probability that all three are yellow?

$\frac{2}{6} \cdot \frac{2}{6} \cdot \frac{2}{6} = \frac{1}{3} \cdot \frac{1}{3} \cdot \frac{1}{3} = \frac{1}{27}$

14 tot

17. A bag contains 5 green marbles, 6 blue marbles and 3 red marbles. What is the probability that a marble drawn from the bag is green or red?

1 draw

$P(G_1) + P(R)$

$\frac{5}{14} + \frac{3}{14} = \frac{8}{14} = \frac{4}{7}$