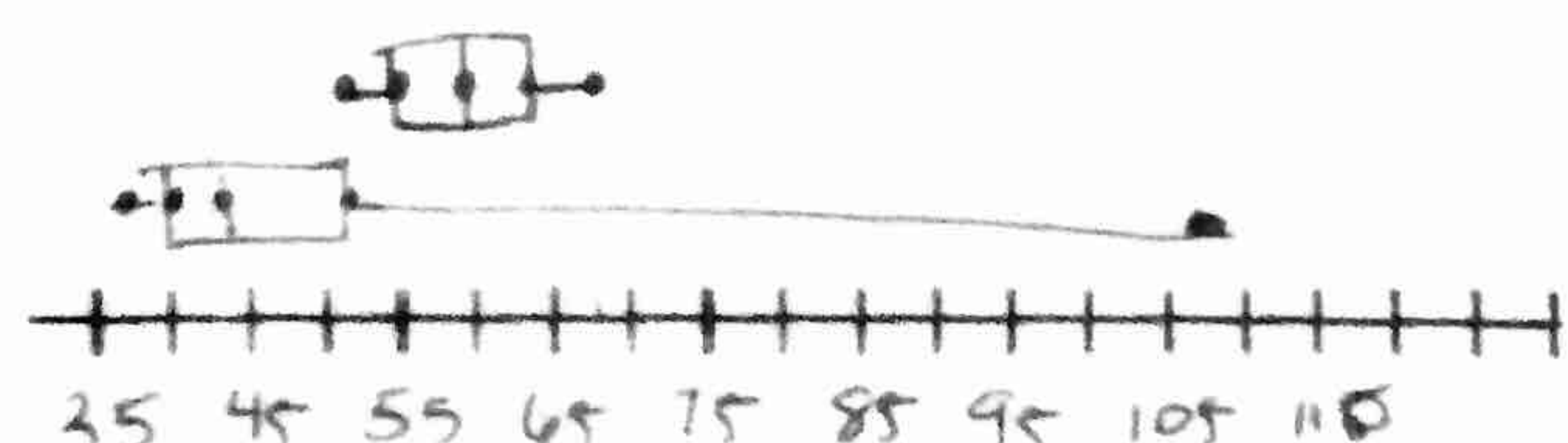


Name: _____

Date: _____

Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

What you need to know & be able to do	Things to remember	Problem	Problem
Identify the measures of central tendency.	<ul style="list-style-type: none"> • Mean • Median • Mode 	1. 36 39 58, 42, 106, 39, 48, 45 $\bar{x} = 51.625$ $med = 43.5$ $mode = 39$	2. 50, 55, 60, 58, 62, 57, 68, 51, 63 $\bar{x} = 58.22$ $med = 58$ $mode = none$
Identify the measures of spread.	<ul style="list-style-type: none"> • Q1 • Q3 • IQR • Minimum • Maximum • Range • MAD 	3. (Use the same #s from 1) $Q_1 = 39$ $Q_3 = 53$ $IQR = 14$ $min = 36$ $max = 106$ $Range = 70$ $MAD = 15.1875$	4. (Use the same #s from 2) $Q_1 = 53$ $Q_3 = 62.5$ $IQR = 9.5$ $min = 50$ $max = 68$ $Range = 18$ $MAD = 4.45$
Construct a box-and-whisker plot.	<ul style="list-style-type: none"> • First dot: Min • First Line: Q1 • Middle Line: Median • Third Line: Q3 • Last dot: Max <ul style="list-style-type: none"> • Outlier: $Q_1 - 1.5(IQR)$ $Q_3 + 1.5(IQR)$ 	5. Using the data from #1 & 3, construct a box and whisker plot.  6. Are there any outliers? Show your work! $39 - 1.5(14) = 33$ $53 + 1.5(14) = 74$ yes 106 $53 - 1.5(9.5) = 38.75$ $62.5 + 1.5(9.5) = 74.75$ none	

Determine if the situation has a positive, negative, or no correlation and if there is causation.

- Positive: Both items are increasing/decreasing
- Negative: one item increases as the other decreases
- No Correlation: No relationship
- Causation: One item causes the other.

7. Practicing Free Throws vs. Free Throw Percentage

Positive

8. Colors of the Sky vs. Time of Day

none

9. Weight vs. Amount of Exercise

Negative

10. Number of Followers on Twitter vs. Number of Friends on Facebook

Positive or none

Find the line of best fit.

- $y = ax + b$
- r = correlation coefficient (if close to 0 bad fit; if close to 1 or -1 good fit.)

11. Determine the line of best fit. Is this model a good fit for the data?

Price	4.00	5.50	3.50	8.00	5.50	7.00
# of Sandwiches	68	55	85	22	64	28

$$y = -13.72x + 130.28$$

$$r = -0.97$$

Good Fit

Construct a probability table.

- Joint Probability: Individual Cell/Table Total
- Marginal Probability: Row or Column Total/Table Total
- Conditional Probability: Individual Cell/Row or Column Total

Complete the table to answer the following questions.

	Football	Basketball	Soccer	
Males	48	35	17	100
Females	22	38	40	100
	70	73	57	200

12. What is the probability that a randomly chosen female likes soccer?

$$\frac{40}{200} = .2 = 20\%$$

13. What is the probability that someone likes basketball?

$$\frac{73}{200} = .365 = 37\%$$

14. Given that a person likes football, what is the probability they are male?

$$\frac{48}{70} = .686 = 69\%$$

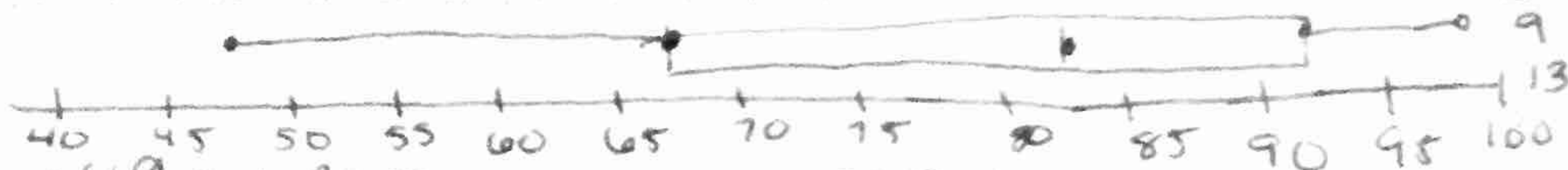
2
16
17
3
12
22
8
3
32
15
0

1. Identify the Five-Number Summary number for the data of Johnny's test scores and draw the Box & Whisker plot.

min 48
Q₁ = 68
med = 83
Q₃ = 92.5
max = 97

92, 96, 97, 83, 92, 58, 93, 88, 77, 48, 65, 80, 71

$\bar{x} = 80$



What is the range? 49 IQR? 24.5

MAD? 12.44

Are there any outliers in the data set?

$68 - 1.5(24.5) = 31.25$

$92.5 + 1.5(24.5) = 129.5$ no

2. The table gives the low temperatures in Chicago on eight randomly selected winter days. Which measure of central tendency probably gives the LEAST ACCURATE prediction of a "typical" low temperature on a Chicago winter day? mean *b/c of the outlier*

Chicago Lows							
17	25	28	12	16	55	18	22

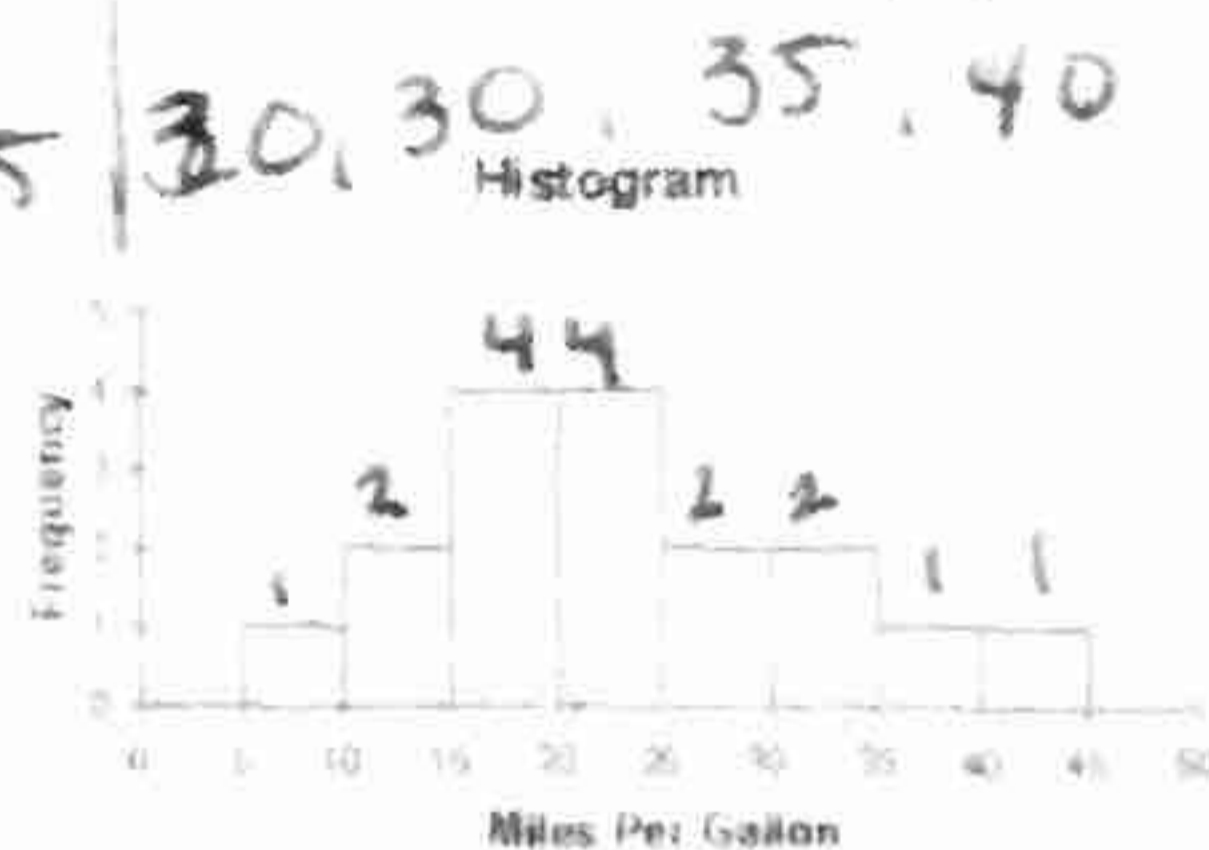
$\bar{x} = 24.125$ med. = 20

3. Describe the shape of the distribution. Estimate the mean, median and upper and lower quartiles for the data.

5, 10, 10, 15, 15, 15, 20, 20, 20, 20, 25, 25

mean ≈ 27
median $\approx 20-25$

Q₁ = 15
Q₃ = 25-30 ≈ 27.5



4. Construct a frequency table from the following information:

A survey of 200 9th and 10th graders was given to determine what their favorite subject was. 72 said Math (50 which were freshmen), 38 said Social Studies (20 which were sophomores), and 40 freshmen and 50 sophomores said PE was their favorite.

	Math	SS	PE	Total
9	50	18	40	108
10	22	20	50	92
Total	72	38	90	200

36% 19% 45%

54%

46%

Based on your tables above, answer the following questions:

a) What are the marginal relative frequencies in Table 1? see above

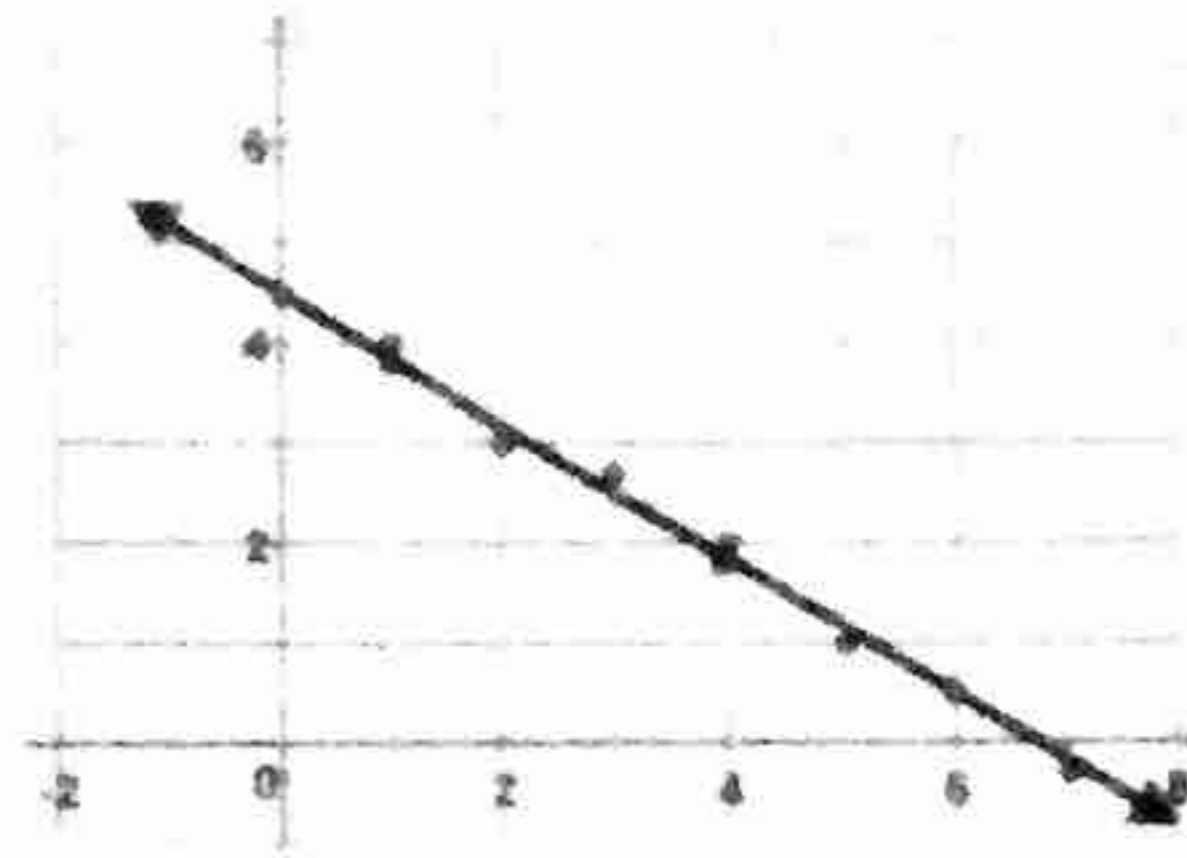
b) What are the joint relative frequencies? 25%, 9%, 20%

c) What is the percent that a student surveyed is a freshman? 54%

d) What is the percent that a student surveyed likes Math? 36%

e) If a student likes Math, what is the percent that they are a freshman? $\frac{50}{72} = 69.4\%$

5. For the given scatter plot, find the equation for the line of best fit by hand.



$$-\frac{2}{3}x + 4.5$$

6. Estimate the correlation coefficient for the following graphs.



-1



0



.5

7. Determine if the following situations represent positive, negative, or no correlation.

- a) Number of hours studying for the SAT and your score. Positive
- b) The distance you drive and the number of stars in the sky. none
- c) The temperature and the length of daylight hours for the day Negative

8. Tell whether the following situations are causation: (yes or no)

- a) The number of boats on Lake Allatoona and the number of cars on the street no
- b) The hours you work and the money you make yes
- c) The time spent studying and the A on the test yes

9. The following table shows a person study hours versus their test scores.

Hours studied (x)	2	5	1	0	4	2	3
Grade on test (y)	77	92	70	63	90	75	84

- a) Use your calculator to find the line of best fit for the data above. $y = 6.09x + 63.93$
- b) What is the value of r? .98897 Is this a good fit? yes
- c) Use the equation to predict the test grade for someone who studies 5.5 hours. 97.425
- d) Calculate and plot the residuals using the table below. Is there a pattern? Is this a good model?

Hours Studying	Predicted Grade	Residual
0		
1		
2		
2		
3		
4		
5		

