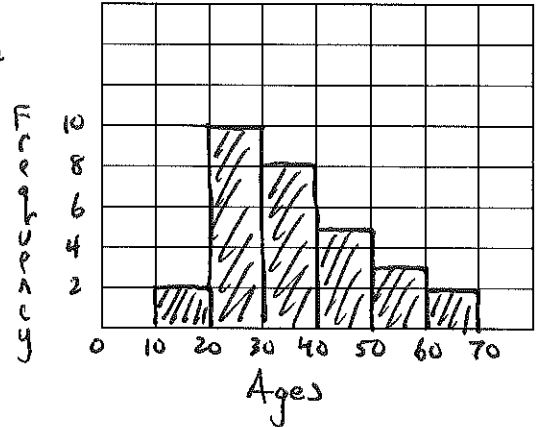


1. For the following set of data, complete the frequency distribution, histogram and stem and leaf plot. The data shows the ages of 30 consumers who bought a certain product advertised on TV:

42 44 62 35 20 39 21 18 24 42
30 56 20 23 41 40 32 50 31 26
55 22 31 27 66 18 25 35 36 22

Ages	Frequency
10-19	2
20-29	10
30-39	8
40-49	5
50-59	3
60-69	2

1 | 8, 8
2 | 0, 0, 1, 2, 2, 3, 4, 5, 6, 7
3 | 0, 1, 1, 2, 5, 5, 6, 9
4 | 0, 1, 2, 2, 4
5 | 0, 5, 6
6 | 2, 6



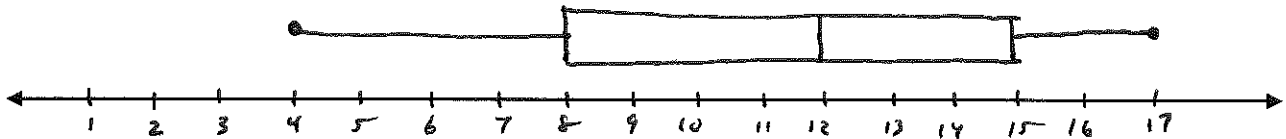
Key: $1/8 = 18$

2. Find the five number summary and IQR for the given data set. Create a box and whisker plot to display the data.

4 5 8 10 12 } 12 13 15 16 17
~~5 8 10 12 13 15 17 12 16~~

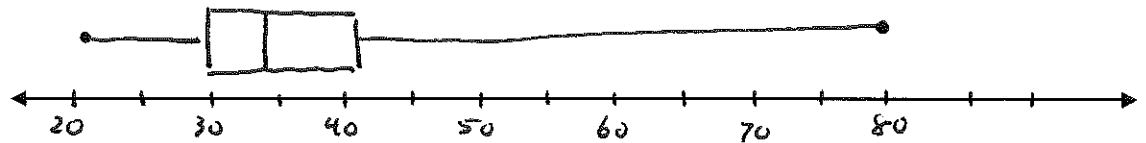
Min: 4 Q1: 8 Median: 12 Q3: 15 Max: 17 IQR: 7

Does the data set contain any outliers? L.F: $8 - (7 \times 1.5) = -2.5$ No outliers
U.F: $15 + (7 \times 1.5) = 25.5$



3. The following table lists the ages of actresses when they won their first Oscar. Find the five number summary for the set of data and determine if there are any outliers. Create a box and whisker plot for the data.

21	24	25
26	26	27
30	30	31
33	34	34
34	34	35
35	37	38
39	41	41
44	50	60
61	74	80



Min: 21 Q1: 30 med: 34 Q3: 41 Max: 80

Describe the shape of the distribution: skewed right

4. Given the 18-hole totals for the top golfer's in the men's competition and the women's competition, compare the spread of the data for the two sets using Mean Absolute Deviation.

TOP 6 GOLFER'S SCORES

MEN	WOMEN
67	68
69	70
69	72
71	73
74	74
76	75

Men's

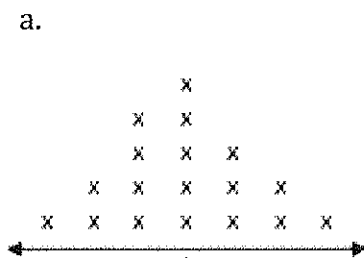
Mean: 71 MAD: 2.67

Women's

Mean: 72 Mad: 2

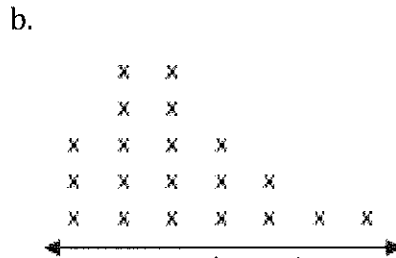
Which group of golfers was more consistent? Why? Women's. MAD is lower, which means the data was closer to the average value.

5. What does the Mean Absolute Deviation Represent? Explain in your own words.
How close each data value is to the actual average of the data. It tells how spread out your data is as a whole.
6. For the following dot plots, determine the shape of the distribution. Determine the order in which the mean, median and mode would occur for each distribution.



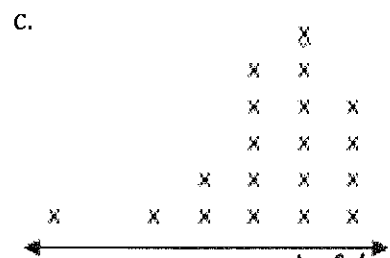
No skew
Symmetrical

Lowest:
Middle: all approx equal
Highest:



skewed right

Lowest: mode
Middle: median
Highest: mean



shewed left

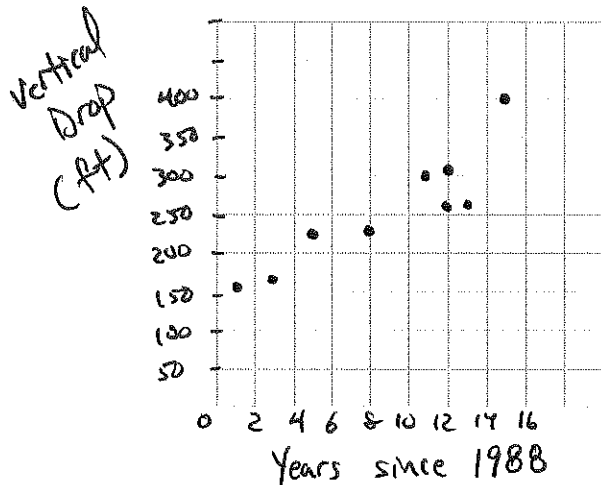
Lowest: mean
Middle: median
Highest: mode

7. The table shows the largest vertical drops of nine roller coasters in the United States and the number of year after 1988 that they were opened.

Years Since 1988	1	3	5	8	11	12	12	13	15
Vertical Drop	151	155	225	230	300	306	255	255	400

a. Make a scatter plot for the data.

b. Estimate the equation of a line of best fit.



$$y = 14.08x + 127.83$$

c. Predict the vertical drop of a coaster built in 2018.

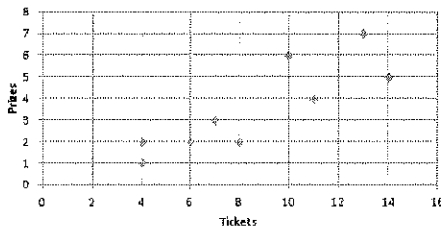
550.23 ft

↓

$$x = 30 \quad y = 14.08(30) + 127.83$$

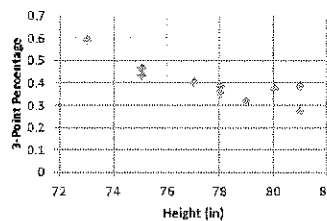
8. Determine whether each graph shows a positive, negative or no correlation. If there is a positive or negative correlation, describe its meaning in the situation.

a. Game Tickets at the Fair



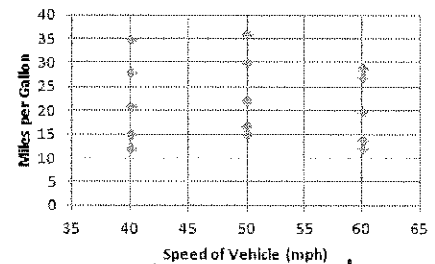
Positive

b. NBA 3-Point Percentage



Negative

c. Gas Mileage



No correlation

9. Explain how the correlation coefficient relates to the fit of a model to data. _____
It tells you how accurate the line is to the data. 1 would be a perfect fit. The closer r is to 1, the closer the data is to the line.
r could also be close to -1 if it shows negative correlation.

Unit 6 Test Review

10. The Body Mass Index (BMI) is a measure of body fat using height and weight. The heights and weights of twelve men with normal BMI are given in the table.

Height(in)	Weight(lb)
62	115
63	124
65	120
67	134
67	140
68	138
68	144
68	152
69	147
72	155
73	168
73	166

a. Use the calculator to find the linear regression equation for the data.

$$y = 4.57x - 168.5$$

b. Does the correlation coefficient suggest a good linear fit?

$$r = .957 \quad \text{yes it is close to 1}$$

c. Predict the normal weight for a man who is 84 inches tall.

$$y = 4.57(84) - 168.5 \quad x = 84$$

$$215.38 \text{ pounds}$$

d. A man's weight is 188 pounds. Use the equation to predict his height.

$$y = 188$$

$$x = 78 \text{ inches}$$

11. The following data displays the annual salaries, in the thousands, for 10 different people with various levels of education.

Years of Education	5	12	12	14	16	16	18	18	20	24
Annual Salary	23	26	27	48	58	65	95	110	160	250

a. What would be the most appropriate model for the data? Why?

linear $r = .87$ exponential $r = .94$ r is closer to 1 for exponential than for linear

b. Use the most appropriate model to predict what someone with 17 years of education would make? exp: $y = 6.72(1.16)^x$ $x = 17$

\$83.78 thousand

c. Use the most appropriate model to predict how many years of schooling it would take to make \$85,000 a year.

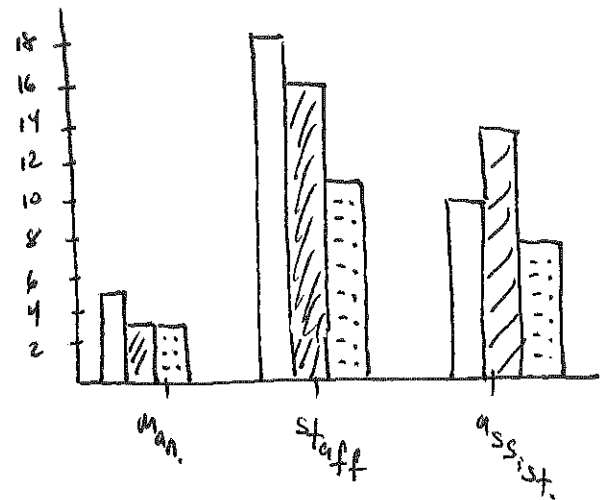
$$y = 85 \quad 17.1 \text{ years} \approx 17 \text{ years}$$

12. The managers, staff, and assistants were given three options for the holiday activity: a potluck, a dinner at a restaurant, and a gift exchange. Five of the 11 managers want a dinner, while 3 want a potluck. Eleven of the 45 staff members want a gift exchange, while 18 want a dinner. Ten of the 32 assistants want a dinner, while 8 of them want a gift exchange.

a. Create a two-way frequency table for the data.

	dinner	potluck	gift	
managers	5	3	3	11
staff	18	16	11	45
assistants	10	14	8	32
	33	33	22	88

b. Create a multiple bar histogram with the employees on the x axis.

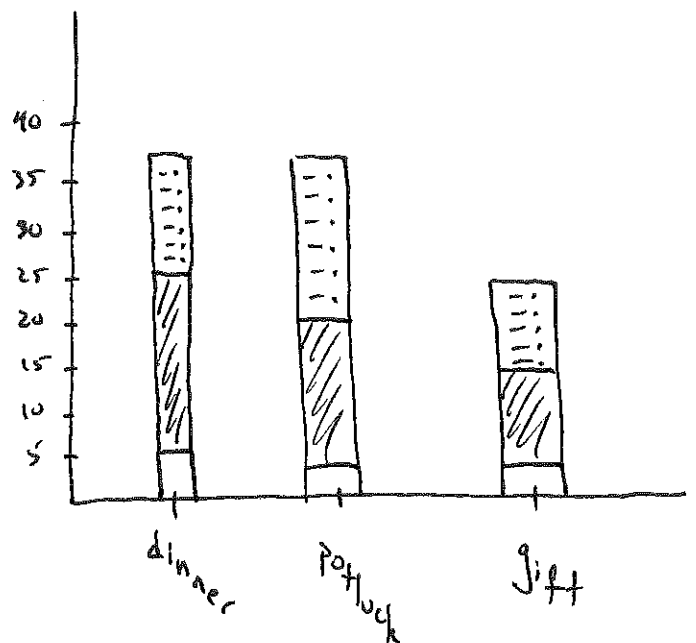


key □ = dinner ▨ = potluck
 ⋯ = gift

c. Create a relative frequency table for the data.

	dinner	potluck	gift
man.	5.7%	3.4%	3.4%
staff.	20.5%	18.2%	12.5%
assist.	11.4%	15.9%	9.1%
	37.6	37.5	25

d. Create a stacked bar graph with activity on the x axis.



key □ = managers ▨ = staff
 ⋯ = assistants