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Unit 6 Test Review

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	
20-29	
30-39	
40-49	
50-59	
60-69	

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

5 8 10 12 13 15 17 4 12 16

Min:______ Q1:______ Median:______ Q3:______ Max:______ IQR:______

Does the data set contain any outliers?

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

Describe the shape of the distribution: ______________________

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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:_____ MAD: _____

Women's

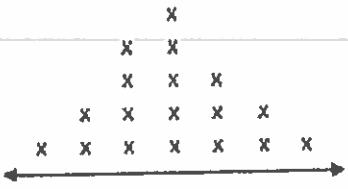
Mean: _____ Mad:_____

Which group of golfers was more consistent? Why? _____
_____.

5. What does the Mean Absolute Deviation Represent? Explain in your own words._____
_____
_____.

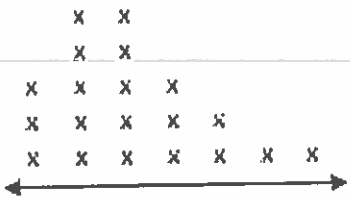
6. For the following dot plots, determine the shape of the distribution. Determine the order in which the mean, median and mode would occur for each distribution.

a.



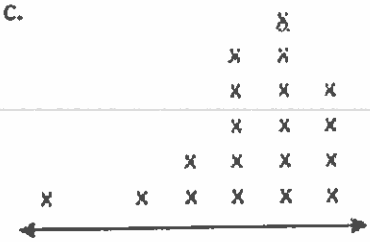
Lowest:
Middle:
Highest:

b.



Lowest:
Middle:
Highest:

c.



Lowest:
Middle:
Highest:

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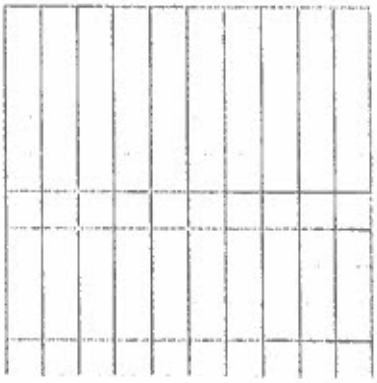
7. The table shows the largest vertical drops of nine roller coasters in the United States and the number of year after 1988 that they were opened.

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.

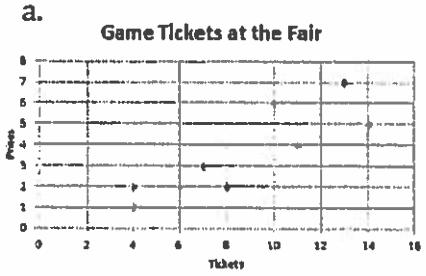


b. Estimate the equation of a line of best fit.

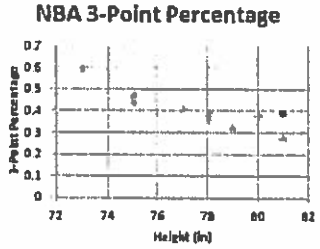
c. Predict the vertical drop of a coaster built in 2018.

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.

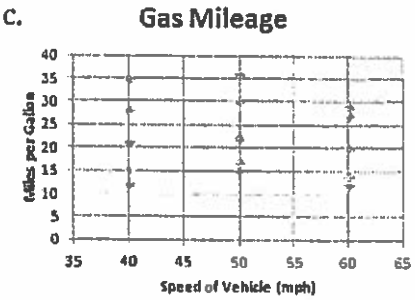
a.



b.



c.



9. Explain how the correlation coefficient relates to the fit of a model to data. _____

_____

_____

_____.

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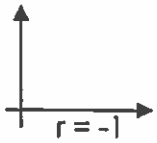
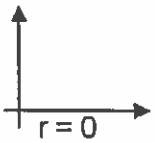
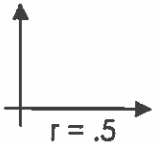
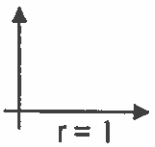
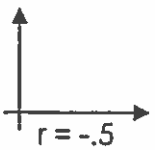
2. Create an example of the following coefficent correlations:











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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.

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

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

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

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?

b. Use the most appropriate model to predict what someone with 17 years of education would make?

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

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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.

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4. Determine if the following situations represent a **positive, negative,** or **no correlation.**

    a) Number of hours studying for the SAT and your score. _____

    b) The distance you drive and the number of stars in the sky. _____

    c) The temperature and the length of daylight hours for the day _____

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5. 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 ____

    b) The hours you work and the money you make _____

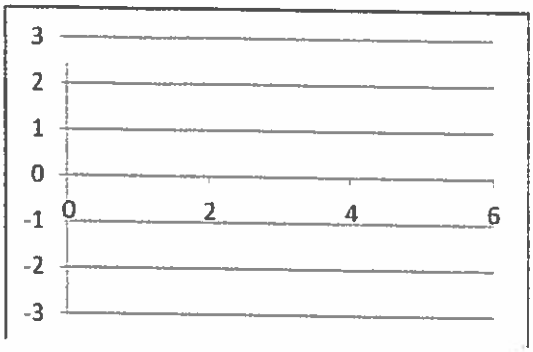
    c) The time spent studying and the A on the test _____

Residuals: The data given below shows the height at various ages for a group of children

Age (months)	18	19	20	21	22	23	24	25	26	27	28	29
Height (cm)	76	77.1	78.1	78.3	78.8	79.4	79.9	81.3	81.1	82	82.6	83.5

Given the best fit line as: **y = .634x + 64.945**

X	Y	Predicted	Residual (Actual-Predicted)
18	76		
19	77.1		
20	78.1		
21	78.3		
22	78.8		
23	79.4		
24	79.9		
25	81.3		
26	81.1		
27	82		
28	82.6		
29	83.5		



Two –way table

Freshman girls and boys were surveyed to choose their favorite subject from the list of Math, English or Science. The results are shown in the two-way relative frequency table below (rounding to *nearest hundredth*). Answer the questions below, regarding this table.

	Math	English	Science	Totals
Girls	$\frac{50}{150}=0.33$	$\frac{40}{150}=0.27$	$\frac{60}{150}=0.40$	$\frac{150}{150}=1.00$
Boys	$\frac{65}{165}=0.39$	$\frac{30}{165}=0.18$	$\frac{70}{165}=0.42$	$\frac{165}{165}=1.00$
Totals	$\frac{115}{315}=0.37$	$\frac{70}{315}=0.22$	$\frac{130}{315}=0.41$	$\frac{315}{315}=1.00$

1. How many girls participated in the survey?
2. What percentage of the boys chose "Science"?
3. What percentage of the girls chose "Math"?
4. What percentage of the students chose "English"?
5. List 2 relative marginal frequencies include what the frequency describes.
6. List 2 relative joint frequencies include what the frequency describes.
7. List 2 relative conditional frequencies include what the frequency describes.