Math 1

Test tomorrow

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Math I Module C Review   Name ___key___

1. The mean heights of the students in Marcy's fourth grade class is 54 inches. Marcy's dad is a professional basketball player. What happens to the mean height when his height is included with the class?

The mean height will increase with the
outlier

2. Given the plot below, what is the difference between the median salary for business and law professions (the graph is in thousands of dollars)?
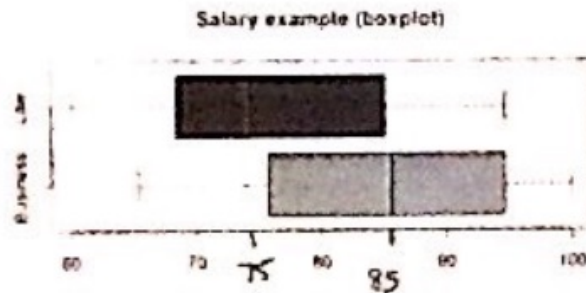
$85 - 75 = 10$

10 thousand $

Salary example (boxplot)

3. Below are prices of bicycles at two competing stores:

Midtown Bikes
$345, $350, $356, $360, $ 375, $405

Bike Central
$343, $370, $386, $392, $395, $402

1-var Stats

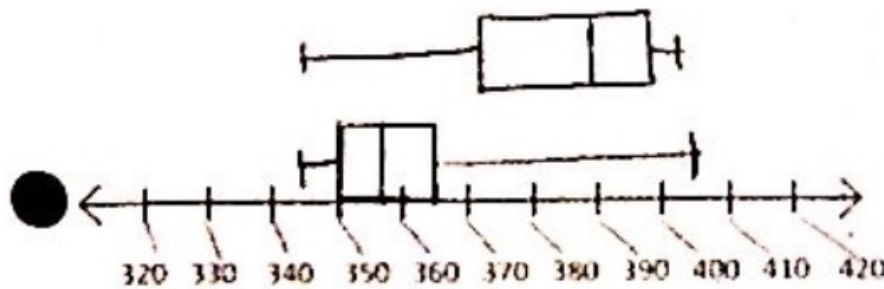Identify the 5 number summary for each set of data.

Median: __358__   Median: __389__

1st Quartile: __350__ 3rd Quartile: __375__   1st Quartile: __370__   3rd Quartile: __395__

Lower Extreme: __345__ Upper Extreme: __405__ Lower Extreme: __343__ Upper Extreme: __402__

Draw a double box plot of the above data on the number line below:

320 330 340 350 360 370 380 390 400 410 420

4 The following are quiz scores from two Math I classes
Class 1 68, 93, 32, 100, 77, 86, 91, 88, 72, 74, 66, 82
Class 2 77, 91, 82, 68, 75, 72, 85, 65, 70, 79, 94, 86

1- var stats

a. Find the means for the test scores of each class.

$\overline{x}$

$C_1 = 77.4$
$C_2 = 78.7$

b. Find the medians for the test scores of each class.

med

$C_1 = 79.5$
$C_2 = 78$

c. Find the range of each set of test scores.

max-min

$C_1 = 68$
$C_2 = 29$

d. Find the interquartile range of each set of test scores.

$Q_3 - Q_1$

$C_1 = 19.5$
$C_2 = 14.5$

e. Which measure of center and which measure of spread should be used to compare the data? Why?

median because class 1 has an outlier

f. Find the standard deviations. Which class was more consistent in their scores? How can you see this from the standard deviation?

Sx

$C_1 = 17.8$
$C_2 = 9.2$

Class 2 was more consistent because it has a lower Standard deviation

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5. Which of the following histograms most likely has an outlier that is above the data? How do you know?
   Describe the shape of each histogram.

Histogram of x

Symmetric

↙ tail

Skewed right

tail
↓

Skewed up

↓ tail
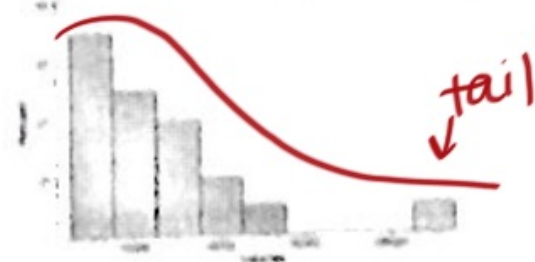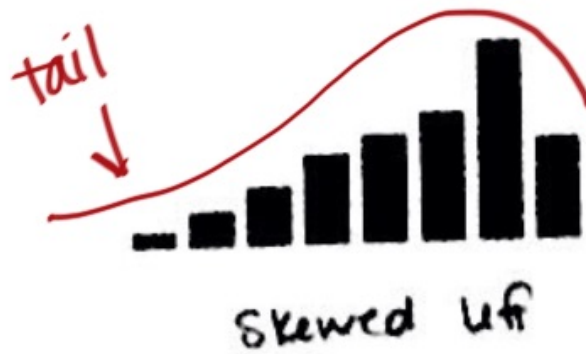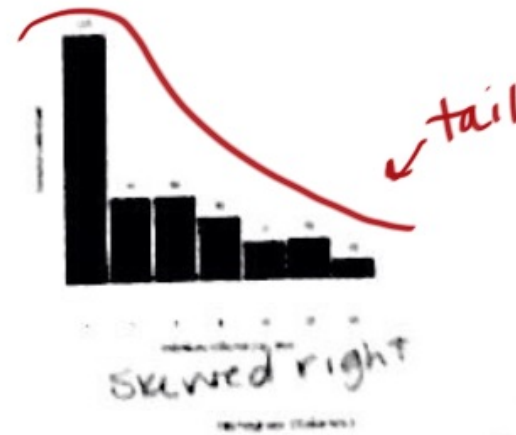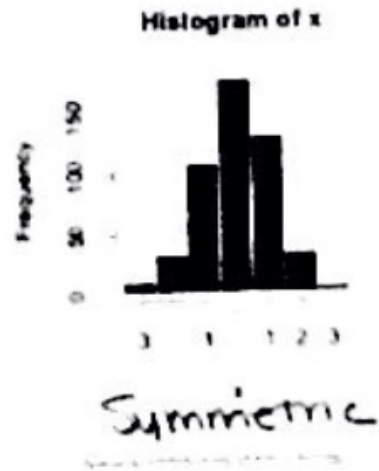
Skewed right
⭐ Outlier

6. On last week's math test, Mr. Smith's class scored a mean of 83 points with a standard deviation of 8 points. Mr. Jenkins' class scored a mean of 78 points with a standard deviation of 4 points. Which class was more consistent on the test? Explain your answer.

Mr Jenkins' class is more consistent because the standard deviation is lower

7. A factory is producing and stockpiling metal sheets to be shipped to an automobile manufacturing plant. The accompanying table shows the day, x, and the number of sheets in stock, f(x)

L1   L2

Day (x)	Sheets in Stock (f(x))
1	860
2	930
3	1000
4	1150
5	1200
6	1360

① Find the linear model.

$f(x) = 98.9x + 737.3$

b. What does x represent?

# of days

c. What does f(x) represent?

# of sheets in stock

d. If it is day 10, what would you predict the number of sheets in stock to be?

$f(x) = 98.9(10) + 737.3$ $f(x) = 1726.3$ sheets!

e. If there are 885 sheets in stock, what day would you expect it to be?

→ y or f(x)

$885 = 98.9x + 737.3$ $\frac{147.7}{98.9} = \frac{98.9x}{98.9}$ x = 1.5 days

$-737.3 \qquad 737.3$

Day 2

f. What is the correlation coefficient and what does it tell you about the data?

4: LinReg   .99 , the data is positive & strong

g. What does the slope in the linear model mean in the context of the problem?

every day, the sheets in stock increase by 98.9 sheets

h. What does the y intercept mean in the context of the problem?

on day 0, there is 737.3 sheets in stock

r-value
mode &
turn Stat
Diag. On

8. True/False

    or association

  a. **False** There is a positive correlation between the shoe size of a baseball player and his batting average

  b. **true** The correlation coefficient is the same as the r value

  c. **false** The closer the r value is to 0, the stronger the correlation

9. Estimate the correlation of the following scatterplots:

−.90

−.50

.00

.50

.90

1.00
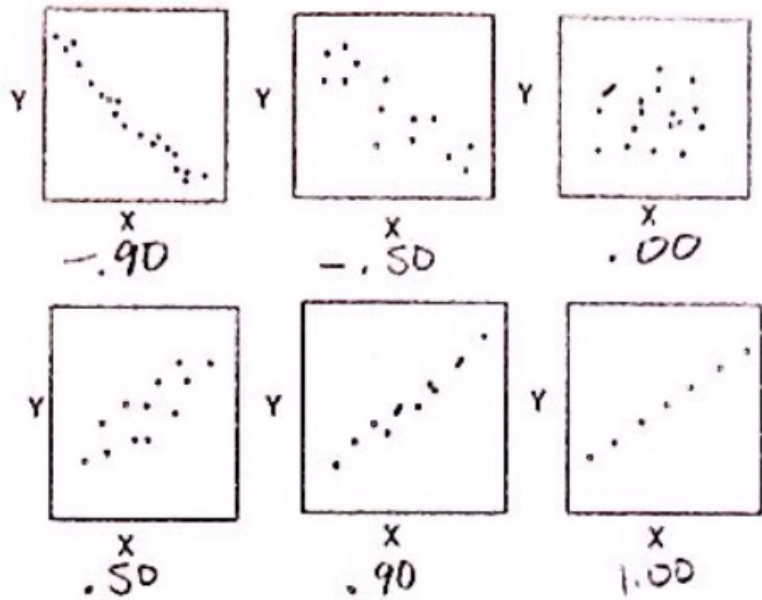
r-values

r = −.90   r = .00

r = −.90   r = .50

r = 1.00   r = .50

10. Use the data in the table to find the information below.

X	Y	Predicted Y	Residual
2	120	117	3
3	110	121	-11
2.5	123	119	4
4.1	130	125.4	4.6

② Linear Regression Model: $y = 4x + 109$

r value: .43

Correlation (circle one)   strong   or   (weak)

(positive)   or   negative

Is the linear regression model a good fit? Explain.

This is not a good fit. The residual plot is too plus spread out & not evenly above & below the x-axis. correlate is weak

11. Find the line of best fit for the data in the table below. Let x represent the years since 1990, with x=0 representing 1990. Let y represent the birth rate per 1000 population. Write the slope-intercept form of the equation for the line of fit using the points representing 1992 and 2000.

United States Year	Birth Rate (per 1000)
0 1990	16.7
1 1991	16.3
2 1992	15.9
3 1993	15.5
4 1994	15.2
5 1995	14.8

United States Year	Birth Rate (per 1000)
6 1996	14.7
7 1997	14.5
8 1998	14.6
9 1999	14.5
10 2000	14.7
11 2001	14.5

$y = -.19x + 16.22$

Predict the birth rate in 2005. Round your answer to the nearest tenth, if necessary.

15 years $y = -.19(15) + 16.22$ $y = 13.37$