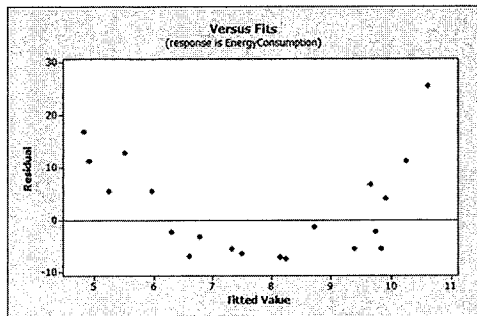
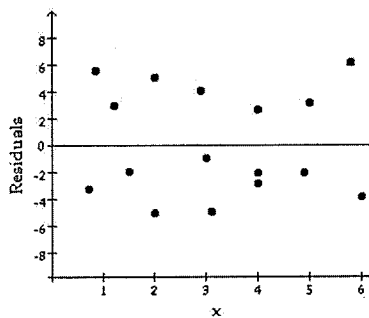


For the following residual plots, is the line of best fit an appropriate model? Explain why or why not?



No, the data's not evenly distributed around this

line. There's no line of best fit.



Yes, the data is evenly placed around the line.

6. When the actual value is less than the predicted value, the residual will be...

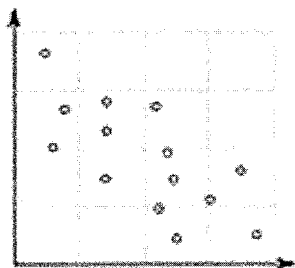
- a. Positive
- b. Negative
- c. Small
- d. Large
- e. Zero

7. When the actual value is the same as the predicted value, the residual will be...

- a. Positive
- b. Negative
- c. Small
- d. Large
- e. Zero

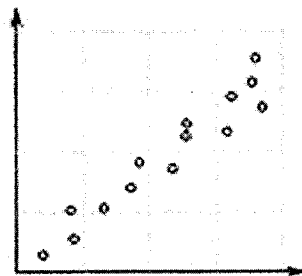
Estimate the correlation coefficient.

- a. 0.3
- b. -0.3
- c. 0.8
- d. -1



Estimate the correlation coefficient.

- a. 0.8
- b. 1
- c. 0.3
- d. 0



Make a two-way relative frequency by row table, column table, and a relative frequency table from the table below. Do medical helicopters save lives? Mode of transportation vs mortality of patient.

	Helicopter	Road	Total
Victim died	64	260	324
Victim lived	136	840	976
Total	200	1100	1300

Row

	Helicopter	Road	Total
Victim died	20%	80%	100%
Victim lived	14%	86%	100%
Total	15%	85%	100%

Column

	Helicopter	Road	Total
Victim died	32%	24%	25%
Victim lived	68%	76%	75%
Total	100%	100%	100%

General

	Helicopter	Road	Total
Victim died	5%	20%	25%
Victim lived	10%	65%	75%
Total	15%	85%	100%

Write an observation from the joint relative frequencies of each table.

Row: ex: 86% of those who lived got to the hospital via roads

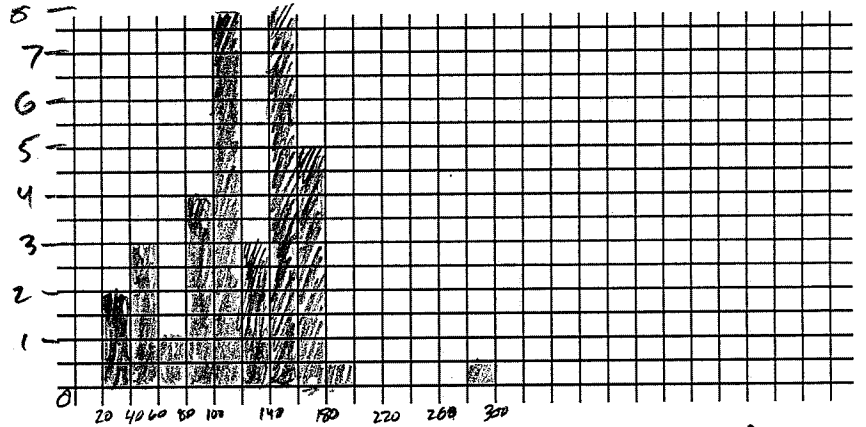
Column: ex: 68% of those who took the helicopter lived

General: ex: 5% of all patients took the helicopter and died.

General:

Create a histogram for the following data regarding the duration in seconds of roller coaster rides in California. This data is actually real! Remember to label and scale your axes. *Not enough room for categories of 10*

28	96	132	160
36	105	132	160
44	108	134	168
44	111	146	180
55	112	150	180
62	116	150	180
90	120	150	180
90	120	150	195
92	120	156	300



21-40 2  
 41-60 3  
 61-80 1  
 81-100 4  
 101-120 8  
 121-140 3  
 141-160 8  
 161-180 5  
 181-200 1  
 201-300 1

(probably should've made vertical scale 1 block = 1 roller coaster)

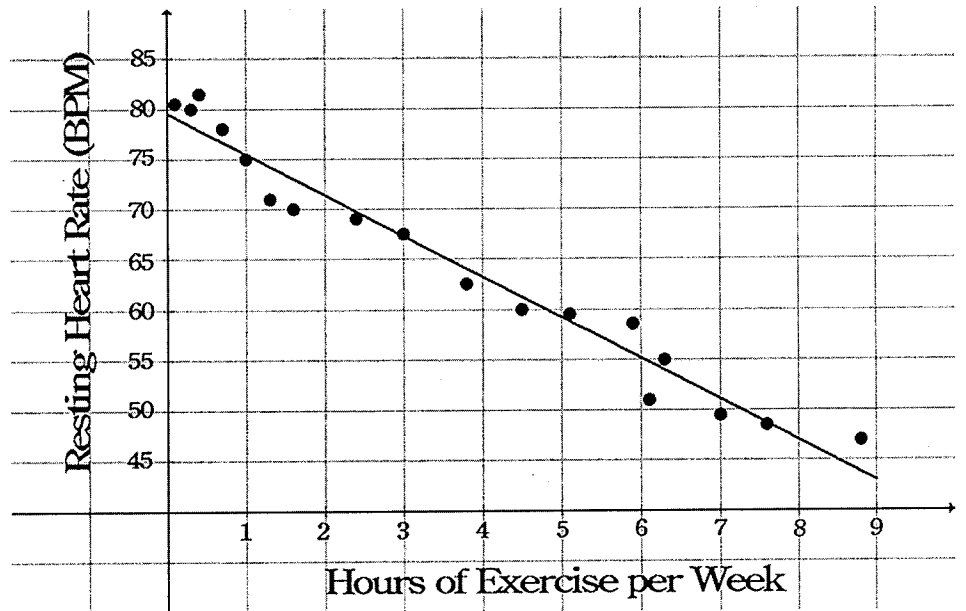
Answer the following questions about the graph below.

The line of best fit can be modeled by  $y = -3.982x + 79.8$

Explain in words the meaning of the slope. *The average decrease in resting heart rate for every added hour of exercise/week.*

Explain in words the meaning of the y-intercept.

*Heart rate for someone who doesn't exercise (on average)*



If a person exercises 6 hours per week, what is the resting heart rate that would be predicted by the line of best fit? *55 bpm. Note that 3 pieces of data give 3 different #'s - 52, 55, 58, but we're looking at the line.*

If a person has a resting heart rate of 70 BPM, what is the predicted number of hours the person exercises per week according to the line of best fit? *About 2 1/3 hours/week. Note again that 3 data points had about 70 bpm - 1 1/3, 1 1/2, 2 1/3 - but again we're looking at the line*

Follow the steps below to find the standard deviation of Rachel's data. The chart below may help organize the process ( $x$  represents each individual data item,  $\mu$  is the mean of the data)

1. Find the mean,  $\mu$
2. Find the difference between each data item and the mean,  $x - \mu$
3. Square each of the differences,  $(x - \mu)^2$
4. Find the average (mean) of these squared differences.
5. Take the square root of this average.

$x$	1. $x - \mu$	2. $(x - \mu)^2$
36	-70.4	4956.2
70	-36.4	1325
80	-26.4	697.0
85	-21.4	458
110	3.6	13
130	23.6	557
137	30.6	936.4
138	31.6	998.6
138	31.6	998.6
140	33.6	1129

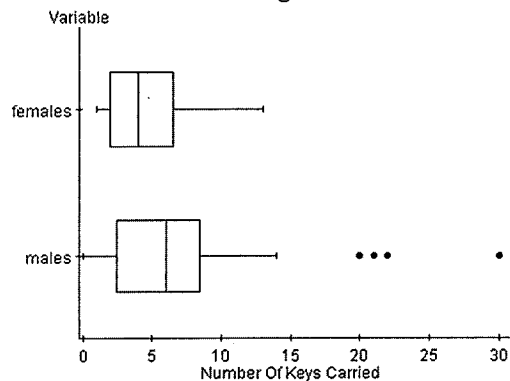
3. Mean or  $\mu = \underline{106.4}$

4. mean of these squared differences = 1206.84

5. standard deviation = 34.74

← adds to 12068.4

Estimate the following statistics for the female and male distribution below.



Female	
Min	1
Q1	2
Median	4
Q3	6
Max	13
IQR	4
Range	12

Male	
Min	0
Q1	2
Median	6
Q3	8
Max	14
IQR	6
Range	14

Compare the distributions of the number of keys males carry with the number of keys females carry. Address shape, center, and spread.

Shape Males skewed right, Females about normal

Center Males have lower median (4) than females (6)

Spread Even without outliers, women have more variability with range (14 vs 12), though men have higher IQR (6 vs 4)