

Name: _____
 Date: _____
 Class: _____

Algebra
 Unit 12
 HW 12-4

1)

Time (sec)	0	2	4	6	8	10	12
Speed (ft/sec)	0	25	46	60	68	72	74

The above data shows the speed a rock is traveling dropped from the top of a skyscraper after a certain number of seconds. Find the equation of the line of best fit and the correlation coefficient (all rounded to the nearest tenth).

$$y = 6.036x + 13.071$$

2)

Hours Studying	3	7	2	11	8	16	5	9
GPA	78	80	75	94	89	92	80	84

Find the equation of the line of best fit using the above data. Find the residual value for the point (11, 94).

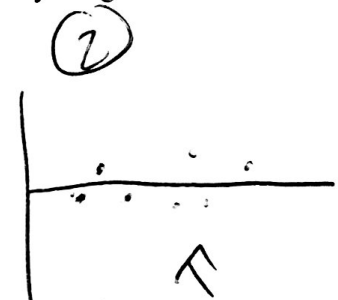
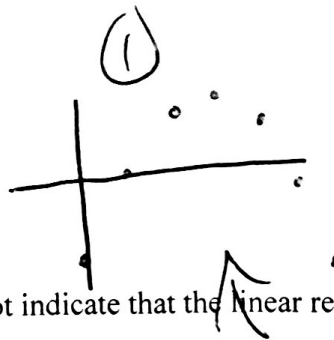
$$y = 1.348x + 73.719$$

$$y = 1.348(11) + 73.719$$

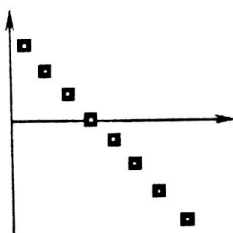
$$88.547$$

$$94 - 88.547 = 5.453$$

3) Create a residual plot for both #1 and #2. Do the residual plots tell you anything about the linear regressions?



4) Would the following residual plot indicate that the linear regression was a good model?



Linear is bad representation because there is a pattern

Linear is ok b/c there is no pattern

5)

Time (sec)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Distance (ft)	0	0.4	1.5	3.2	5.6	8.5	12.6	17.2	22.8

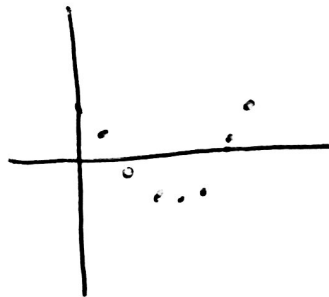
Using the above data, find the linear regression equation and the correlation coefficient to the nearest hundredth.

$$Y = 5.64x - 3.300$$
$$r = .959$$

6) Find the residual for (1.5, 3.2) using the data in #5

$$Y = 5.64(1.5) - 3.3$$
$$Y = 5.16$$
$$3.2 - 5.16 = -1.96$$

7) Create a residual plot for the data in #5. What does this show about the linear regression?



Linear is not a
good approximation