

Statistics
1st Semester Exam Review: Linear Regression Review

Average home attendance and number of home wins for the 2009 – 2010 NBA Pacific Division teams were as follows:

	Lakers	Suns	Clippers	Warriors	Kings
Average Attendance	18,997	17,648	16,343	18,027	13,254
Home Wins	34	32	21	18	18

- a. Determine the equation of the best-fit line that can be used to predict attendance.
- b. What is the correlation coefficient.
- c. Interpret the slope and y-intercept of the equation in the context of the problem.
- d. What does the R^2 value say about this problem?
- e. Make a prediction for average attendance for a team that has 25 home wins.
- f. Make a statement about the accuracy of your prediction above.
- g. Determine the residual for the Clippers.

Some 9th grade students are studying free falling objects. Below is a table with data that was collected.

Time (sec)	Distance (cm)	Time (sec)	Distance (cm)
.16	12	.57	150.3
.24	29.7	.61	182.2
.25	32.8	.61	190
.30	42.9	.68	220
.31	44.5	.71	254.3
.32	55	.72	260.9
.36	63.9	.83	334.5
.36	65.2	.88	376
.51	125.6	.89	338.7
.51	129.5		

- Find the linear model and correlation coefficient.
- Describe why a linear model is not appropriate.

Use the re-expressed model questions c & d

$$\log(\widehat{distance}) = 2.68 + 1.97 \log(time)$$

- Make a prediction of the distance if an object fell for 0.80 seconds
- Determine the residual for an object that fell for 0.32 seconds