

Show All Work!

A liquor store wants to know which product category, cigarettes or bourbon, will be a better predictor of beer sales. The manager has collected the following data.

Week	Bourbon	Cigarettes	Beer
1	89	231	1149
2	81	228	971
3	84	259	989
4	71	192	966
5	73	268	1172
6	70	230	1261
7	72	281	1288
8	79	234	1199
9	74	235	1366
10	84	245	1271
11	88	255	1346
12	84	281	1172

For each independent variable complete the following:

1. Produce a scatter plot to illustrate the relationship between the independent variable and the dependent variable.
2. Calculate the Pearson Correlation Coefficient.
3. Determine the Equation of the Regression Line.
4. Based on the regression equation, calculate predicted beer sales and residuals for each Week.
5. Calculate the Sum of Squares Error and the Standard Error of the Estimate.
6. Calculate the Coefficient of Determination.
7. Assume the liquor store manager has never taken a course in statistics. Which product category would you suggest as a more accurate predictor of beer sales? Why?
8. If the regression model were to be used for beer inventory decisions, what level of accuracy should the store manager expect?