All questions refer to the following information:

A New Orleans restaurateur wants to understand the potential relationship between the prices restaurants charge for entrées and their sales of alcoholic beverages. He hires you to undertake this investigation and, accordingly, you collect data from 16 relatively high-end New Orleans restaurants regarding the average menu prices of their entrées and their average sales of alcoholic beverages per customer. Among the restaurants that you survey, the mean of the average entrée price is $25.94 and the standard deviation is $6.87. You decide to run a regression on your data using average entrée price as the predictor variable and sales of alcoholic beverages per customer as the dependent variable. The results are below:

Regression Statistics

R	R Square	Adjusted R^2	Standard Error	Observations
0.833	0.694	0.672	2.952	16

Summary Table

Variable	Coefficient	Standard Error
Intercept	-3.148	2.969
ENTRÉE	0.625	0.111

1) What is the estimated correlation between the average price of a restaurant's entrées and their sales of alcoholic beverages per customer?

2) Is there enough evidence for you to tell the restaurateur that there is a relationship between average entrée price and per-customer sales of alcoholic beverages with 95% confidence?

3) Assuming that this data is representative of similar New Orleans restaurants, what is the expected value of alcohol sales per customer for similar New Orleans restaurants?

4) If entrée prices do cause alcohol sales to rise, how much should a restaurant's management expect their alcohol sales per customer to rise if they raised the price of all of their entrées by $2.50? Provide an 80% confidence interval for the expected change.

5) Provide a range within which you can be 90% certain that drink sales per customer for a restaurant charging an average of $30 per entrée will fall.

6) Provide a 90% confidence interval for the mean drink sales per customer for all similar New Orleans restaurants which change an average of $30 per entrée.

7) What percentage of the variance in alcohol sales per customer can be explained by a restaurant's average entrée price?

8) The owner of another restaurant states that every dollar increase in average entrée prices raises the sales of alcoholic beverages per customer by no more than $0.50. Does this data provide enough evidence to refute her claim with 95% certainty?

9) One of the assumptions of linear regression is that residuals are normally distributed around prediction points. If you determine that none of the residuals for this regression fall outside the 90% prediction intervals for each data point, does this fact provide evidence to conclude with 95% certainty that the residuals of this regression are not normally distributed?

10) If a typical restaurant earns $0.31 in net income per dollar changed for entrées and $0.49 per dollar charged for drinks, what is the minimum amount that the restaurant's management should charge per entrée if they hope to bring in $20 in net income per customer?