NAME:

We want to predict the sales of a company based on two independent variables: advertising budget (in thousands of dollars) and store size (in square meters).

Advertising Budget (X1)	Store Size (X2)	Sales (Y)
10	200	300
12	220	350
15	240	400
14	210	380
13	230	370
11	200	310
16	250	420
18	260	450
17	270	440
19	280	470

1) Calculate coefficients and write the equation:

2) We can use this equation to predict sales for values of **Advertising Budget** is $16,000 and **Store Size** is 250 square meters.
The predicted sales would be:

3) How would you interpret the coefficient β1 for Advertising Budget?

4) How would you interpret the coefficient β2 for Store Size?

5) Test at the 5% significance level whether the regression coefficient β1 is statistically significant? Why yes or why no?

6) Test at the 5% significance level whether the regression coefficient β2 is statistically significant? Why yes or why no?

7) Is multicollinearity present? Calculate the correlation matrix.

Read the following paragraph about multicollinearity.
What effect does multicollinearity have on testing the significance of coefficients?
Multicollinearity occurs when independent variables are highly correlated with each other. This can affect the estimation of coefficients and their statistical significance because high correlation between variables makes it difficult to determine which variable has a real effect on the dependent variable.
In such cases, coefficients may have high standard errors, leading to high p-values, even if the model is correct.