NAME:

A company wants to analyze how advertising budget affects sales revenue.
They collect data from multiple regions and consider the following independent

1. TV Advertising Budget (in $1000s)
2. Radio Advertising Budget (in $1000s)
3. Social Media Advertising Budget (in $1000s)

The dependent variable is the Sales Revenue (in $1000s).
The goal is to build a multiple linear regression model to predict sales revenue ba

TV Budget _X1	Radio Budget _X2	Social Media Budget_X3	Sales Revenue_Y
200	50	20	400
150	30	50	380
300	70	40	600
250	50	30	550
180	40	25	420
180	60	25	410
130	20	55	420
310	80	45	620
270	40	35	570
190	30	28	430

1) Calculate coefficients and write the equation:

2)Prediction: For a TV budget of $250, radio budget of $60, and social media bud

The predicted sales revenue would be:

3) Calculate R^2 to determine the proportion of variance in sales revenue explain

4) How would you interpret the coefficient β_1 for TV Budget?

5) Test at the 5% significance level whether the regression coefficient β_1 is statist
Why yes or why no?

6) Test at the 5% significance level whether the regression coefficient β_2 is statist
Why yes or why no?

7) Test at the 5% significance level whether the regression coefficient β_3 is statist
Why yes or why no?

8) Is multicollinearity present? Calculate the correlation matrix.

variables:

ised on these advertising budgets.

lget of $40.

ied by the model.

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