(1) Use the data set Wage1.dta to answer the following questions.

Estimate regression equation \( \text{wage} = \beta_0 + \beta_1 \text{Education} + U \)

(i) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each.

(ii) Interpret each of the coefficients.

(iii) Are the coefficients statistically significant? Explain.

Estimate regression equation \( \text{wage} = \beta_0 + \beta_1 \text{Education} + \beta_2 \text{Experience} + U \)

(iv) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(v) Interpret each of the coefficients. Did your results change from the previous model?

(vi) Are the coefficients statistically significant? Explain.

(vii) Provide an explanation for why you think the results changed.

Estimate regression equation \( \text{wage} = \beta_0 + \beta_1 \text{Education} + \beta_2 \text{Experience} + \beta_3 \text{Tenure} + U \)

(viii) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(ix) Interpret each of the coefficients. Did your results change from the previous model?

(x) Are the coefficients statistically significant? Explain.

(xi) Provide an explanation for why you think the results changed.

Estimate regression equation:
\[ \text{wage} = \beta_0 + \beta_1 \text{Education} + \beta_2 \text{Education}^2 + \beta_3 \text{Experience} + \beta_4 \text{Experience}^2 + \beta_5 \text{Tenure} + \beta_6 \text{Tenure}^2 + U \]

(xii) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(xiii) Interpret each of the coefficients. Did your results change from the previous model?

(xiv) Are the coefficients statistically significant? Explain.

(xv) Provide an explanation for why you think the results changed.

(xvi) Use an F-test to test the claim that education has no effect on wages. Explain fully and show graphically.

Estimate regression equation: \( \ln(\text{wage}) = \beta_0 + \beta_1 \text{Education} + \beta_2 \text{Experience} + \beta_3 \text{Tenure} + U; \) where \( \ln(\text{wage}) \) is the natural log of wage.

(xvii) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(xviii) Interpret each of the coefficients. Did your results change from the previous model?

(xix) Are the coefficients statistically significant? Explain.

(xx) Provide an explanation for why you think the results changed.

(2) Use the data set Meap01.dta to answer the following questions.

For the regression equation Math Pass (Math4) = \( \beta_0 + \beta_1 \text{Expenditures Per Pupil} + U \)

(i) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(ii) Interpret each of the coefficients. Did your results change from the previous model?

(iii) Are the coefficients statistically significant? Explain.

(iv) Provide an explanation for why you think the results changed.

Estimate regression equation Math Pass (Math4) = \( \beta_0 + \beta_1 \text{Expenditures Per Pupil} + \beta_2 \text{Percent of Students Eligible for Free Lunch} + U \)

(v) Use the \( R^2 \) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

(vi) Interpret each of the coefficients. Did your results change from the previous model?
Are the coefficients statistically significant? Explain.

Provide an explanation for why you think the results changed.

Estimate regression equation: \( \ln(\text{Math4}) = \beta_0 + \beta_1 \text{Expenditures Per Pupil} + \beta_2 \text{Percent of Students Eligible for Free Lunch} + \epsilon \); where \( \ln(\text{Math4}) \) is the natural log of Math4.

Use the R\(^2\) and F-test to test for overall significance of the estimate regression. Explain each. Did your results change from the previous model?

Interpret each of the coefficients. Did your results change from the previous model?

Are the coefficients statistically significant? Explain.

Provide an explanation for why you think the results changed.