

## Question

Regression model diagnostics might include checking for which of the following?

- ☐ a. model fit
  - ☐ b. model assumptions (independent, normal errors with constant variance)
  - ☐ c. multicollinearity
  - ☐ d. influential observations
  - ☐ e. a and b
  - ☐ f. all of the above
- 

**Correct.**

Regression model diagnostics include checking model fit, model assumptions, multicollinearity, and influential observations.

## Question

In the previous demonstration, which of the following did you discover?

- ☐ a. The residuals appear to be normally distributed.
  - ☐ b. The residual variances might not be constant.
  - ☐ c. There does not seem to be apparent multicollinearity.
  - ☐ d. There can be some influential observations.
  - ☐ e. all of the above
  - ☐ f. none of the above
- 

**Correct.**

In the demonstration, the residuals did appear to be normally distributed, the residual variances might not be constant; there does not seem to be apparent multicollinearity; and there are some influential observations.

## Question

What did you find out about the model diagnostics in the previous practice?

- ☐ a. The residuals are normally distributed.
  - ☐ b. There seems to be apparent multicollinearity.
  - ☐ c. The error variance might not be constant.
  - ☐ d. a and c
  - ☐ e. all of the above
- 

**Correct.**

In the Parameter Estimates table, the VIF for **Weight** is 14.39. This indicates moderate collinearity between **Weight** and one or more other variables in the model. The Collinearity Diagnostics table suggests that moderate multicollinearity might exist between **Weight** and the intercept. In the PROC CORR results, the Spearman correlation coefficient is significant with a  $p$ -value of 0.0001, which indicates that the variance is not constant. Neither the histogram of the residuals nor the normal quantile plot indicates any problems with the normality assumption of the error terms. This model seems to meet the assumptions of normality and independence for linear regression, but does not appear to meet the assumption of constant variance.