

## Practice: Using PROC REG to Examine Residuals

Run a regression on **PctBodyFat2** in the **stat1.bodyfat2** data set to examine residuals.

1. Use PROC REG to run a regression model of **PctBodyFat2** on **Abdomen**, **Weight**, **Wrist**, and **Forearm**. Create plots of the residuals by the four regressors and by the predicted values, and a normal Q-Q plot. Submit the code and view the results.

```
/*st105s01.sas*/
ods graphics / imagemap=on;

proc reg data=STAT1.BodyFat2
    plots(only)=(QQ RESIDUALBYPREDICTED RESIDUALS);
    FORWARD: model PctBodyFat2 = Abdomen Weight Wrist Forearm;
    id Case;
    title 'FORWARD Model - Plots of Diagnostic Statistics';
run;
quit;
```

Here are the [results](#).

2. Do the residual plots indicate any problems with the constant variance assumption?

It doesn't appear that the data violate the assumption of constant variance. Also, the residuals show nice random scatter and indicate no problem with model specification.

3. Are there any outliers indicated by the evidence in any of the residual plots?

There are a few outliers for **Wrist** and **Forearm**, and one clear outlier in both **Abdomen** and **Weight**.

4. Does the Q-Q plot indicate any problems with the normality assumption?

The normality assumption seems to be met.

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