Biology 4605 / 7220 Name _____Key_____
Quiz #4b 14 October 2005

1. W.W. Daniel (*Biostatistics*. John Wiley, 1995 p 409) gives data for temperature in laboratory animals (T = deg C) at 10 successive time (t = hours after inoculation).

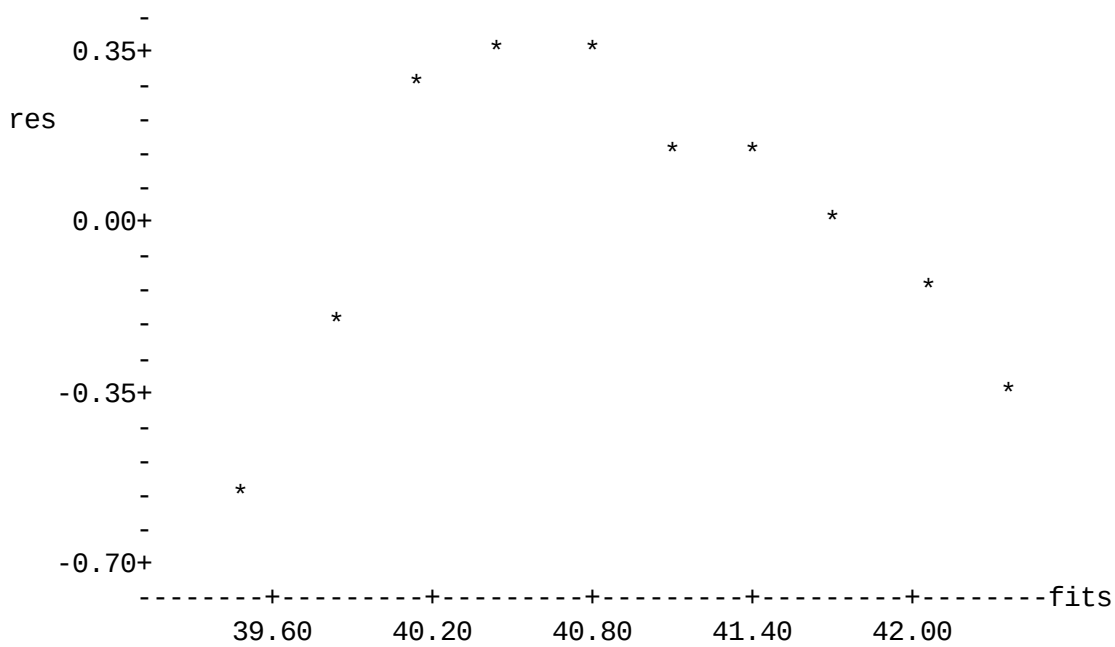
Using the symbols provided, write a general linear model for the relation of temperature to time after inoculation.

$$T = b_o + b_t t + error$$

2. Complete the ANOVA table

SOURCE	DF	SS	MS	F
Time	1	8.4160	8.4160	77.13
Error	8	0.8730	0.1091	
Total	9	9.2890		

3. Here is a plot of residuals versus fitted values for this regression. Comment on whether a linear model is appropriate for this data.



Residual plot shows clear arch, hence data deviate from linear (straight line) model.

The regression equation is
degC = 37.5 + 0.0798 time

Predictor	Coef	Stdev	t-ratio	p
Constant	37.4564	0.3959	94.61	0.000
time	0.079849	0.009092	8.78	0.000

s = 0.3303 R-sq = 90.6% R-sq(adj) = 89.4%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	8.4160	8.4160	77.13	0.000
Error	8	0.8730	0.1091		
Total	9	9.2890			