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| **I. ANOVA**  **II.**  **III.**    **C:\Documents and Settings\Dee\Desktop\DHWemblem.jpg** | | HowtoR\_ProcAnovaNormalityboxwhiskerplots\_p.3.2.2.doc  V1: dhw 5/21/2012 | | |
| 1. **Proc Anova (Balanced/oneway), (p. 46)** | | | | |
| Call:  lm(formula = Velocity ~ Powder, data = bullets)  Residuals:  Min 1Q Median 3Q Max  -0.5375 -0.2375 -0.0600 0.3150 0.4625  Coefficients:  Estimate Std. Error t value Pr(>|t|)  (Intercept) 27.2150 0.2685 101.352 <2e-16 \*\*\*  Powder 0.4225 0.1644 2.569 0.0206 \*  ---  Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1  Residual standard error: 0.3467 on 16 degrees of freedom  Multiple R-squared: 0.2921, Adjusted R-squared: 0.2479  F-statistic: 6.602 on 1 and 16 DF, p-value: 0.02058 | ###### read.csv reads in the dataset as a csv file  ###### You may have to figure out where R's native root ###### folder is.  ###### Mine is set up to be in the root folder where  ###### dwh4DustinFife is found  bullets = read.csv("c:/RSAS\_UserDemo/datasets/bullet.csv")  ###### View the first 6 observations of the bullets dataset  head(bullets)  ###### Analyze dataset using the 'lm' command.  ###### Type ?lm to see more details  ###### Also, I'm creating an object to reference later (I ###### called it mod1)  mod1 = lm(Velocity~Powder, data=bullets)  summary(mod1)  **On Sas**  RootmsE 0.346658  Model DF=1  Error DF=16  F Vslur for powder 6.60  P<F 0.02058 | | | |
| **data** bullets;  input powder velocity;  datalines;  1 27.3  1 28.1  1 27.4  1 27.7  1 28.0  1 28.1  1 27.4  1 27.1  2 28.3  2 27.9  2 28.1  2 28.3  2 27.9  2 27.6  2 28.5  2 27.9  2 28.4  2 27.7 | The ANOVA Procedure  Dependent Variable: velocity  Sum of  Source DF Squares Mean Square F Value Pr > F  Model 1 0.79336111 0.79336111 6.60 0.0206  Error 16 1.92275000 0.12017188  Corrected Total 17 2.71611111  R-Square Coeff Var Root MSE velocity Mean  0.292094 1.243741 0.346658 27.87222  Source DF Anova SS Mean Square F Value Pr > F  powder 1 0.79336111 0.79336111 6.60 0.0206 | | | |
| 1. **Plot a QQ plot (p 50)** | | | | |
|  | | | ###### normal probability plot uses the function 'qqnorm'  ###### first we subset the data to get only observations ###### where powder =1, then 2, etc  p1 = subset(bullets, Powder==1)$Velocity  ###### this subsets the dataset called 'bullets', finding ###### those rows where Powder is equal to 1  ###### The '$Velocity' part tells us to grab only the ###### variable 'Velocity'  p2 = subset(bullets, Powder==2)$Velocity  ###### This sets the graphical parameters. mar refers to ###### the margins (bottom, left, top, right)  ###### mgp specifies how far from the axes the axis labels,  ###### the numbers, and the tick marks fall  ###### mfrow gives multiple plots in one window, the  ####### parameters specify how many rows and columns  ###### there are  par(mfrow=c(2,1), mar=c(2.5,2.5,2,1), mgp=c(1.5, .5, 0))  ###### qqnorm only takes a single argument, a vector of  ####### data that it will plot the normal-ness of  qqnorm(p1)  ###### draw a line where the theoretical quantiles should  ###### match  qqline(p1)  ###### and repeat the procedure  qqnorm(p1, main="")  ##### main tells you what to label the top of the plot  ###### as.....specifying it as "" leaves it blank  qqline(p1) | |
| 1. **Plot a boxplot (p. 51)** | | | | |
|  | | | | ####### This part creates a boxplot  boxplot(Velocity~Powder, data=bullets) |