Normal Distribution MINITAB Applications

We will test our EPA mileage data for normality. After loading the EPAGAS data from our CD we have 100 data value in column C1 of our worksheet. (See Figure 1.) Next we select **Stat**, **Basic Statistics**, **Display Descriptive Statistics...** in that order. (See Figure 2.) Next, in the "Display Descriptive Statistics" window (See Figure 3.) enter MPG under **Variables:** and click on the option **Graphs**. Select "Histogram of data with normal curve" and then **OK** (See Figure 4.) and the **OK** again. (See the result in Figure 5.)



🔀 Minitab - Untitled File Edit Data Calc Stat Graph Editor Tools Window Help Section 2 Content of the Statistics. 🗃 🔒 🎒 👗 🖻 Basic Statistics Regression ۲ Store Descriptive Statistics... <u>A</u>NOVA 豊善 Graphical Summary... 🖽 Session DOE 12 1-Sample Z... <u>C</u>ontrol Charts 1t <u>1</u>-Sample t... Descriptive Statis Quality Tools 2t 2-Sample t ... Reliability/Survival N N* tet Paired t... Variable 100 Multivariate MPG 0 1P 1 Proportion... Time Series Variable Maximum 2P 2 Proportions... Tables EPAGAS.MTP *** s¹_P 1-Samp<u>l</u>e Poisson Rate... Nonparametrics ۲ C1 ŧ C2 s²_p 2-Sample Poisson Rate... EDA MPG Power and Sample Size 🕨 σ^2 1 Variance... 1 36.3 oi , 2 Variances

Figure 1



Figure 3



Figure 2



Figure 4

Here are the descriptive statistics.

Descriptive Statistics: MPG

Variable	N	N*	Mean	SE Mear	n StDev	Minimum
MPG	100	0	36.994	0.242	2.418	30.000
Variable	Q1	Medi	an	Q3	Maximum	
MPG	35.625	37.0	00	38.375	44.900	

Figure 5

Next we will produce a normal probability plot for the MPG data.

Select **Graph** and then select **Probability Plot...** In the "Probability Plots" window (Figure 6.) select **Single** and then **OK**. In the "Probability Plot – Single" window (Figure 7.) enter MPG under **Graph variables:** and select **OK**.

Single	Multiple					
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Figure 6						

Probability Plot - Single	,		
C1 MPG	Graph variables:	Scale	Labels
Select	<u>M</u> ultiple Graphs	D <u>a</u> ta Options	
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Figure 7

Our probability plot of MPG appears in Figure 8.



Figure 8