

Objectives:

Using the **DCARS93** applet, the student will explore relationships among the different data.

Functionality:

When the student selects **START**, the **DCARS93 NOTE** will be displayed.

The data contained in each column is defined in the note as indicated. There are two more columns defined than can fit in this screen view. The extra page contains descriptive titles of manufacturer, model and size of cars.

The **VIEWS** provides several options for the student. The first choice, **Load Data**, must be selected to input the data into the columns. Most of the remaining options deal with adjusting the **PLOT** window once the student decides which columns to analyze.

Once the student has chosen **Load Data**, the calculator returns to the **NUMERIC** View. The **NUM** key provides access to the columns of data any time the student wishes to return to this view.

The student should then press **SYMB** view to define which columns of data will be analyzed. The student can press **PLOT** to look at a scatterplot.

Select the type of fit via the **DCARS 93 SYMBOLIC SETUP** view.

Recall that the **VIEWS** allows for changes to be made in the **PLOT** window. When the data are first graphed, Auto Scale might be the best choice. It will usually give the best window for the scatter plot.

Press **FIT** on the menu bar to draw the regression curve that was selected in **SYMB**.

Note: The correlation coefficient is defined only for LINEAR fits. However, the value of RelErr gives an indication of fit for other models. The smaller the value of RelErr, the better the fit. On the HP38G the value of RelErr can be obtained by typing RELERR in the HOME view. On the HP39G/HP40G this value can also be found in the 2VAR STATS list.

```

DCARS93 NOTE
1993 Car Data
Price and MPG make
good dependent
variables.
Source:
archive@ise.stat.ncsu.
SPACE PAGE F1 F2 BKSP
  
```

```

DCARS93 NOTE
C1 - Prices Basic
C2 - Prices Average
C3 - Prices Premium
C4 - MPG City
C5 - MPG Highway
C6 - Engine liters
SPACE PAGE F1 F2 BKSP
  
```

```

Load Data
in Auto Scale 02
em1 Plot-Detail
HisPlot-Table
G1 Start
CANCEL OK
  
```

n	C1	C2	C3	C4
1	12.4	15.4	18.8	25
2	25.4	24.1	32.3	20
3	11.4	11.4	11.4	25
4	13.4	15.1	16.8	19
5	24.6	38	41.5	17
6	14.5	15.8	17.1	23

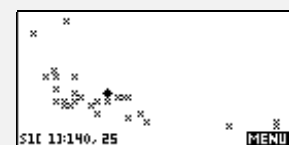
12.9
EDIT INS SORT BIG 2VAR STATS

```

DCARS93 SYMBOLIC VIEW
S1: C7 C4
Fit1: b*X^m
S2:
Fit2: m*X+b
ENTER USER DEFINED FIT
EDIT CHK X SHOW EVAL
  
```

```

DCARS93 SYMBOLIC SETUP
ANGLE MEASURE: Radians
S1FIT: Power S2FIT: Linear
S3FIT: Linear S4FIT: Linear
S5FIT: Linear
CHOOSE STATISTICS MODEL TYPE
CHOOS
  
```



Plot-Detail will allow the student to see the entire set of data plotted on the left side of the screen while viewing a more detailed area on the right side of the screen.



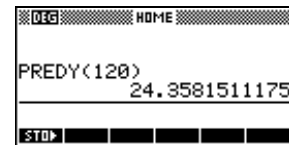
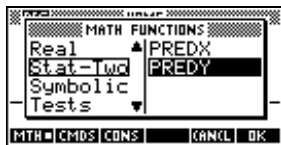
Plot-Table will display the data plot with the data table.



Note: In addition to the value of RelErr the student can use the RESIDUAL aplet to determine if the power fit is best.

Additional Exploration:

Students can go to the HOME screen. They can use the **MATH** menu and choose Stat-Two to select PREDX or PREDY once the regression curve has been found. For this data set, suppose the student wanted to predict the city MPG for a car with an Hp of 120.



Programs associated with this aplet:
 .CARS.D, .CARS.SV

n	Manufacturer	Model	Size
1	Acura	Integra	Small
2	Audi	90	Compact
3	Chevrolet	Corsica	Compact
4	Chevrolet	Camaro	Sporty
5	Chevrolet	Corvette	Sporty
6	Chrysler	LeBaron	Compact
7	Dodge	Spirit	Compact
8	Dodge	Stealth	Sporty
9	Ford	Mustang	Sporty
10	Ford	Probe	Sporty
11	Geo	Storm	Sporty
12	Honda	Prelude	Sporty
13	Honda	Civic	Small
14	Hyundai	Excel	Small
15	Hyundai	Elantra	Small
16	Hyundai	Scoupe	Sporty
17	Mazda	RX-7	Sporty
18	Mercedes	190E	Compact
19	Mercury	Capri	Sporty
20	Mitsubishi	Mirage	Small
21	Nissan	Sentra	Small
22	Nissan	Altima	Compact
23	Oldsmobile	Achieva	Compact
24	Plymouth	Laser	Sporty
25	Pontiac	Sunbird	Compact
26	Pontiac	Firebird	Sporty
27	Subaru	Legacy	Compact
28	Suzuki	Swift	Small
29	Volkswagon	Corrado	Sporty

Data are contained in calculator applet. Prices (\$1000) : C1, C2, C3
 MPG: C4, C5
 Engine (liters): C6
 Hp: C7

Data source: archive@jse.stat.ncsu.edu