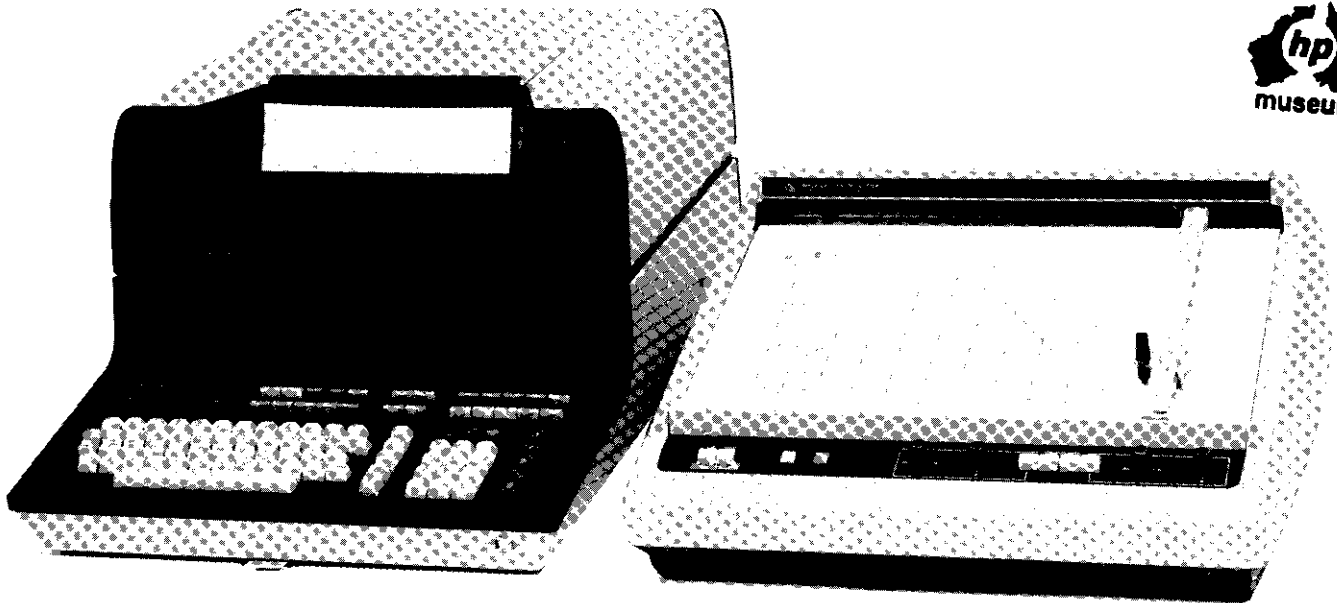


HEWLETT **hp** PACKARD

MODEL
30

11271 PLOTTER CONTROL ROM

TECHNICAL DATA JULY 1973



DESCRIPTION

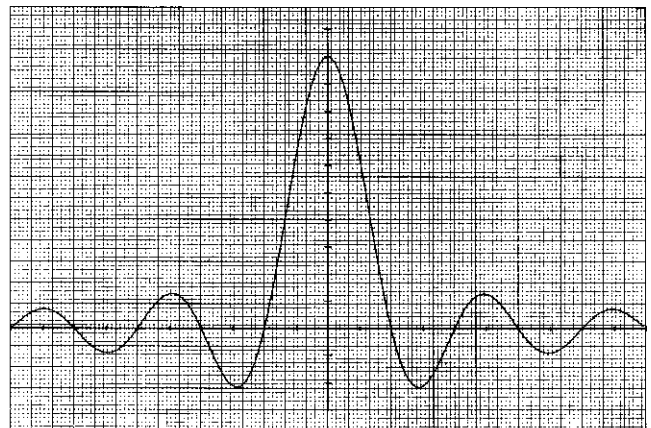
Whether you are a scientist or an engineer studying function plots and response characteristics or a businessman analyzing cash flows and investment returns, the ability to obtain your results in graphic form with the 9862A Plotter can greatly aid you in your analysis.

The Plotter Control ROM, HP Model 11271, provides the 9830 Calculator with the additional commands that are necessary for the control of the 9862A Plotter. These Plotter Control commands are designed to make the job of producing graphical output an easy task.

The 11271 ROM expands the language of the Model 30 to include all the commands illustrated in the table without sacrificing any of the Model 30 Special Function Keys or Read/Write memory.

The extreme simplicity of control that is yours with the 11271 ROM will cause you to waste less of your time getting your results and allow you to spend more time studying them.

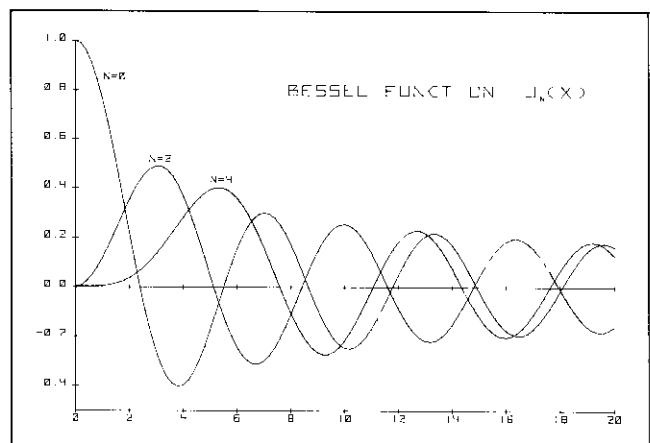
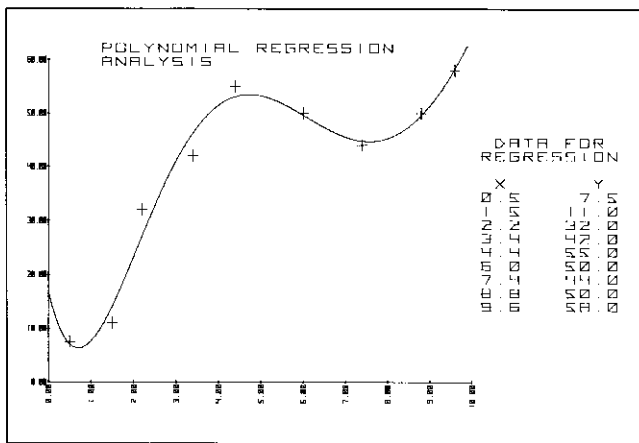
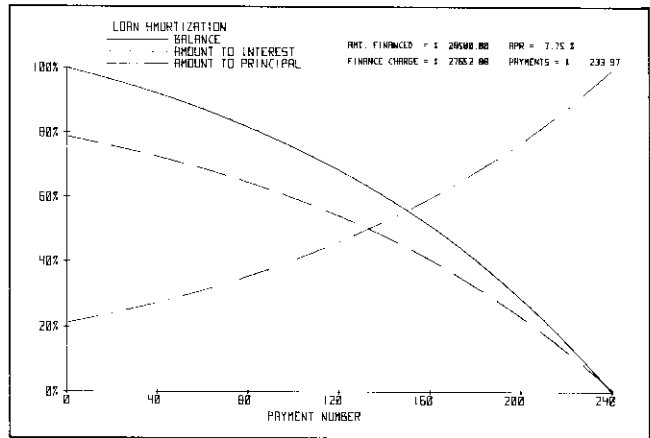
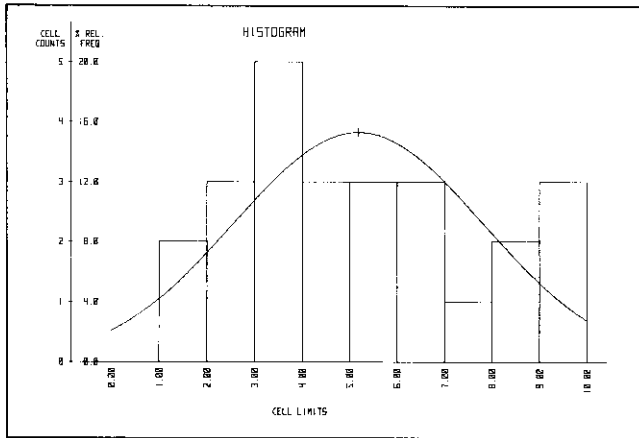
PLOT OF (SIN X)/X



PROGRAM USED TO PLOT (SIN X)/X

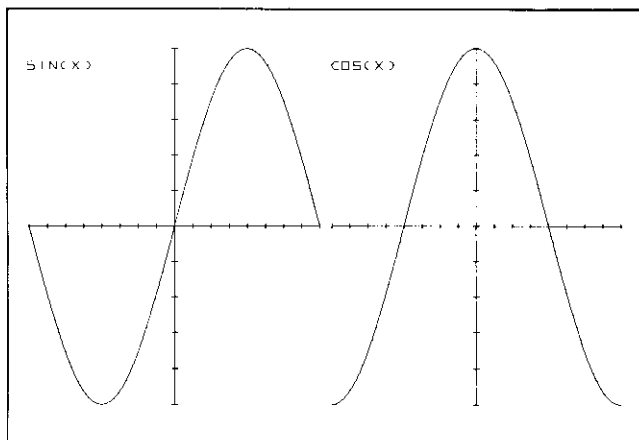
```
10 SCALE -5*PI,5*PI,-0.3,1.1
20 XAXIS 0,PI/2
30 YAXIS 0,0.1
40 FOR X=-5*PI TO 5*PI STEP PI/20
50 PLOT X,SIN(X)/X
60 NEXT X
70 END
```

APPLICATIONS



PLOTTING WITH OFFSET

OFFSET allows you to make several related plots on a single page by temporarily shifting the origin.



```

10 SCALE 0,750,0,2.2
20 DEG
30 OFFSET 750/4,1.1
40 GOSUB 150
50 FOR X=-180 TO 180 STEP 5
60 PLOT X,SIN(X)
70 NEXT X
80 OFFSET 750*3/4,1.1
90 GOSUB 150
100 FOR X=-180 TO 180 STEP 5
110 PLOT X,COS(X)
120 NEXT X
130 PEN
140 STOP
150 XAXIS 0,22.5,-180,180
160 YAXIS 0,0.2,-1,1
170 RETURN
180 END
  
```

TABLE OF PLOTTER OPERATIONS

The parameters A, B, C, and D in the table may be simple constants (i.e., 5, -3.14) or complete expressions (i.e., X^2 , $\sin(3\pi + 2)$, $5 \cdot X/2$). Several of these parameters have "de-

fault" or implied values if they are not specified by the user. For example, if C and D are not given in the XAXIS statement (see Table), the axis is drawn over the full range of X.

OPERATION	STATEMENT	REMARKS
SCALE	SCALE A, B, C, D	Sets the range of x and y in user units. X-range from A to B; Y-range from C to D.
OFFSET	OFFSET A, B	Temporarily shifts the origin (i.e., the point $X=0$, $Y=0$) to the point $X=A$, $Y=B$, and all points are measured from this origin in user units.
XAXIS YAXIS	XAXIS A, B, C, D	Draws an X axis through the point $Y=A$ from $X=C$ to $X=D$ with tic marks at intervals of B, in user units. The results are similar for the YAXIS statement.
PLOT	PLOT A, B, C	Moves the pen to the point $X=A$, $Y=B$. The value of C controls whether the pen is raised or lowered, and whether this action takes place before or after the pen movement.
IPLOT	IPLOT A, B, C	Same as PLOT, except that the point A,B is measured relative to the current pen position.
PEN	PEN	Raises the pen without moving to a new position.
LABEL	LABEL(*)"DISTANCE IN CM"	Prints (on the plotter) the string within the quotation marks using standard format.
	LABEL(40,A,B,C,D)N,M	Prints (on the plotter) the values of N and M using the FORMAT statement in line 40. The parameters A, B, C, and D control the size, shape, and angle of rotation of the plotted characters.
LETTER	LETTER	Allows the pen to be positioned anywhere in the plotting area using the keyboard display-shifting arrow keys. The calculator/plotter is also placed in "typewriter" mode allowing characters to be written on the plotter from the calculator keyboard.
CPLOT	CPLOT A, B	Allows plotted characters to be centered over a particular point by moving the pen in units of "character size."

PLOTTER SOFTWARE



With the 11271 Plotter Control ROM you get a complimentary copy of the 9830A Plotter Pac. The Plotter Pac contains a sampler of plotting programs for scientific and commercial applications. These easy-to-use programs are contained on a tape cassette and are also completely documented in the accompanying manual.

GENERAL

The 9830A Calculator (Model 30) allows the addition of up to 8 Add-on ROMs. Five may be added as external plug-in ROMs and three as internal plug-ins.

There is absolutely no difference in the operation of a ROM installed externally versus internally. It is a simple matter of available space and design.

Add-on ROMs provide additional capabilities by expanding the Command Set of the Model 30. This allows the user to tailor his Model 30 with exactly the peripheral control and language features he requires.

The Plotter Control ROM described in this data sheet is available in internal and external configurations.

EXTERNAL — 11271B
INTERNAL — 11271F

SPECIFICATIONS

Memory: 2048 8-bit bytes (1024 words)
Power: Supplied by the 9830A Calculator
Temperature: 0°C — 45°C
(Specifications Below for External Plug-in ROM)
Weight: 3 oz. (85 g)
Dimensions: 2.56" wide x 4.8" long x 0.8" deep
(6,5 cm x 12,2 cm x 2,05 cm)

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