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PROGRAM LIBRARY

DECUS NO.	FOCAL8-26
TITLE	CURVE FITTING, EXPONENTIAL CURVE $Y = Ae^{BX}$, POWER CURVE $Y=AX^N$, LINEAR LINE $Y=MX+B$
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SOURCE LANGUAGE	FOCAL

ATTENTION

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DECUS Program Library Write-up

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Curve Fitting - This program finds the best curve of a set of points. There are three types of curves that it fits.

Exponential Curve $Y = Ae^{BX}$ - The variables solved for are A and B. The function is reduced to linear form by logarithms: $\text{LOG } Y = BX + \text{LOG } A$. A table of values is formed and solved simultaneously to get the values of A and B.

Power Curve $Y=AX^N$ - This function is reduced to linear form: $\text{LOG } Y = N \text{ LOG } X + \text{LOG } A$. Once a table of values is made, it is solved simultaneously for A and N.

Linear Line $Y=MX+B$ - A table is made and solved simultaneously for the value of M and B.

FOCAL - ENGINEERING

LOADING PROCEDURE

Load a FOCAL tape using the binary loader. Once FOCAL is loaded, put the tape supplied in the Teletype paper-tape reader, and then turn the reader on. As soon as the tape is read in, type: GO. The program will then start working. The program continually recycles back to ask the user for new points after the old ones have been processed. To stop the program push CNTR/C on the Teletype consol.

Note: LOGS are to base e
Tapes available on request.