

LOWER QUARTILE

PURPOSE

Compute the lower quartile for a variable.

DESCRIPTION

The lower quartile is the 25% point of the variable. That is, it is the point with 25% of the observations below it and 75% of the observations above it.

SYNTAX

```
LET <par> = LOWER QUARTILE <y>                <SUBSET/EXCEPT/FOR qualification>
```

where <y> is the response variable;
 <par> is a parameter where the computed lower quartile is stored;
 and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

```
LET A = LOWER QUARTILE Y1
LET A = LOWER QUARTILE Y1 SUBSET TAG > 2
```

NOTE

To compute a given percentile, DATAPLOT first sorts the data. Then an index is calculated as $P*(N+1)$ where P is the given percentile (e.g., .25 for the lower quartile). This index identifies the element in the sorted data set that is the percentile value. Since this computed index will typically not be an integer, an appropriate weighted average is computed between the value corresponding to the index and the value corresponding to the index + 1.

DEFAULT

None

SYNONYMS

None, although LOWER HINGE is closely related.

RELATED COMMANDS

QUARTILE PLOT	=	Generate a quartile versus subset plot.
MINIMUM	=	Compute the minimum of a variable.
MAXIMUM	=	Compute the maximum of a variable.
UPPER QUARTILE	=	Compute the upper quartile of a variable.
LOWER HINGE	=	Compute the lower hinge of a variable.
UPPER HINGE	=	Compute the upper hinge of a variable.
DECILE	=	Compute the decile of a variable.
MEAN	=	Compute the mean of a variable.
STANDARD DEVIATION	=	Compute the standard deviation of a variable.

APPLICATIONS

Exploratory Data Analysis

IMPLEMENTATION DATE

Pre-1987

PROGRAM

```
LET Y1 = EXPONENTIAL RANDOM NUMBERS FOR I = 1 1 100
LET A1 = LOWER QUARTILE Y1
```