

SET COMPLEMENT

PURPOSE

Carry out the complement of 2 sets with numeric elements.

DESCRIPTION

The complement is of set 1 with respect to set 2 (the assumed superset). The resultant set is those elements in set 2 which are not in set 1. For example, the complement of the 3-element set 1 5 7 with respect to the 5-element set 1 3 5 7 9 is the 2-element set 3 9.

SYNTAX

LET <v3> = SET COMPLEMENT <v1> <v2> <SUBSET/EXCEPT/FOR qualification>

where <v1> is the variable containing the elements of the first set;

<v2> is the variable containing the elements of the second set;

<v3> is the variable containing the elements of the resultant set;

and where the <SUBSET/EXCEPT/FOR qualification> is optional and rarely used in this context.

EXAMPLES

```
LET Y3 = SET COMPLEMENT Y1 Y2
```

```
LET Y3 = SET COMPLEMENT Y1 Y2 SUBSET Y1 > 10
```

NOTE

If the elements of a mathematical "set" are numbers (or can be translated into numbers-- always possible), then a DATAPLOT variable can be used to store the items of the mathematical set. To store the set with the 12 elements 1 3 5 7 11 1 4 9 16 1 8 27, form the variable Y with the following command:

```
LET Y = DATA 1 3 5 7 11 1 4 9 16 1 8 27
```

Larger sets can be created with the READ or SERIAL READ commands.

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

| | | |
|-----------------------|---|---|
| SET CARDINALITY | = | Computes the number of elements in a set. |
| SET UNION | = | Carries out a set union. |
| SET INTERSECTION | = | Carries out a set intersection. |
| SET CARTESIAN PRODUCT | = | Carries out a set Cartesian product. |

APPLICATIONS

Mathematics

IMPLEMENTATION DATE

87/10

PROGRAM

```
LET Y1 = DATA 1 5 7
```

```
LET Y2 = DATA 1 3 5 7 9
```

```
LET Y3 = SET COMPLEMENT Y1 Y2
```

```
SET WRITE DECIMALS 0
```

```
WRITE Y1 Y2 Y3
```