

DIVIDE

This chapter covers the following topics:

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- Syntax 2 - DIVIDE Statement with GIVING Clause
- Syntax 3 - DIVIDE Statement with REMAINDER Clause
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Related Statements: ADD | COMPRESS | COMPUTE | EXAMINE | MOVE | MOVE ALL | MULTIPLY | RESET | SEPARATE | SUBTRACT

Belongs to Function Group: *Arithmetic and Data Movement Operations*

Function

The DIVIDE statement is used to divide two operands.

Note:

Concerning Division by Zero: If an attempt is made to use a divisor (*operand1*) which is zero, either an error message or a result equal to zero will be returned; this depends on the setting of the session parameter ZD (described in the *Parameter Reference* documentation).

Syntax 1 - DIVIDE Statement without GIVING Clause

```
DIVIDE [ROUNDED] operand1 INTO operand2
```

For an explanation of the symbols used in the syntax diagrams, see *Syntax Symbols* .

Operand Definition Table:

Operand	Possible Structure				Possible Formats												Referencing Permitted	Dynamic Definition
<i>operand1</i>	C	S	A	N	N	P	I	F									yes	no
<i>operand2</i>	C	S	A	M	N	P	I	F									yes	no

Syntax Element Description:

Syntax Element	Description
<code>operand1 INTO operand2</code>	<p>Operands:</p> <p><i>operand1</i> is the divisor, <i>operand2</i> is the dividend. The result is stored in <i>operand2</i> (result field), hence the statement is equivalent to:</p> $\langle \text{oper2} \rangle := \langle \text{oper2} \rangle / \langle \text{oper1} \rangle$ <p>The result field may be a database field or a user-defined variable.</p> <p>If <i>operand2</i> is a constant or a non-modifiable Natural system variable, the GIVING clause is required.</p> <p>The number of decimal positions for the result of the division is evaluated from the result field (that is, <i>operand2</i>).</p> <p>For the precision of the result, see <i>Rules for Arithmetic Assignments, Precision of Results for Arithmetic Operations</i> in the <i>Programming Guide</i>.</p>
ROUNDED	<p>ROUNDED Option:</p> <p>If you specify the keyword ROUNDED, the result will be rounded.</p> <p>For information on rounding, see <i>Rules for Arithmetic Assignment, Field Truncation and Field Rounding</i> in the <i>Programming Guide</i>.</p>

Syntax 2 - DIVIDE Statement with GIVING Clause

<code>DIVIDE [ROUNDED] operand1 INTO operand2 [GIVING operand3]</code>
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For an explanation of the symbols used in the syntax diagram, see *Syntax Symbols*.

Operand Definition Table:

Operand	Possible Structure				Possible Formats											Referencing Permitted	Dynamic Definition			
<i>operand1</i>	C	S	A	N			N	P	I	F									yes	no
<i>operand2</i>	C	S	A	N			N	P	I	F									yes	no
<i>operand3</i>		S	A		A	U	N	P	I	F	B*								yes	yes

* Format B of *operand3* may be used only with a length of less than or equal to 4.

Syntax Element Description:

Syntax Element	Description
<i>operand1</i> INTO <i>operand2</i> GIVING <i>operand3</i>	<p>Operands:</p> <p><i>operand1</i> is the divisor, <i>operand2</i> is the dividend.</p> <p>The result of the division is stored in <i>operand3</i>, hence the statement is equivalent to:</p> $\langle \text{oper3} \rangle := \langle \text{oper2} \rangle / \langle \text{oper1} \rangle$ <p>If a database field is used as the result field, the division only results in an update to the internal value of the field as used within the program. The value for the field in the database remains unchanged.</p> <p>The number of decimal positions for the result of the division is evaluated from the result field (that is, <i>operand3</i>).</p> <p>For the precision of the result, see <i>Rules for Arithmetic Assignments, Precision of Results for Arithmetic Operations</i> in the <i>Programming Guide</i>.</p>
ROUNDED	<p>ROUNDED Option:</p> <p>If you specify the keyword ROUNDED, the result will be rounded.</p> <p>For information on rounding, see <i>Rules for Arithmetic Assignment, Field Truncation and Field Rounding</i> in the <i>Programming Guide</i>.</p>

Syntax 3 - DIVIDE Statement with REMAINDER Clause

```
DIVIDE operand1 INTO operand2 [GIVING operand3] REMAINDER operand4
```

For an explanation of the symbols used in the syntax diagrams, see *Syntax Symbols*.

Operand Definition Table:

Operand	Possible Structure				Possible Formats												Referencing Permitted	Dynamic Definition	
<i>operand1</i>	C	S	A	N			N	P	I									yes	no
<i>operand2</i>	C	S	A	N			N	P	I									yes	no
<i>operand3</i>		S	A		A	U	N	P	I	F	B*							yes	yes
<i>operand4</i>		S	A		A	U	N	P	I	F	B*	T						yes	yes

* Format B of *operand3* and *operand4* may be used only with a length of less than or equal to 4.

Syntax Element Description:

Syntax Element	Description
<i>operand1</i> <i>operand2</i>	<p>Operands:</p> <p><i>operand1</i> is the divisor; that is, the number or quantity by which the dividend is to be divided to produce the quotient.</p> <p><i>operand2</i> is the dividend.</p> <p>If the GIVING clause is not used, the result is stored in <i>operand2</i>. The result field may be a database field or a user-defined variable.</p> <p>If <i>operand2</i> is a constant or a non-modifiable Natural system variable, the GIVING clause is required.</p>
ROUNDED	<p>ROUNDED Option:</p> <p>If you specify the keyword ROUNDED, the result will be rounded.</p> <p>For information on rounding, see <i>Rules for Arithmetic Assignment, Field Truncation and Field Rounding</i> in the <i>Programming Guide</i>.</p>
GIVING <i>operand3</i>	<p>GIVING Clause:</p> <p>If this clause is used, <i>operand2</i> will not be modified and the result will be stored in <i>operand3</i>.</p> <p>If a database field is used as the result field, the division only results in an update to the internal value of the field as used within the program. The value for the field in the database remains unchanged.</p> <p>The number of decimal positions for the result of the division is evaluated from the result field (that is, <i>operand2</i> if no GIVING clause is used, or <i>operand3</i> if the GIVING clause is used).</p> <p>For the precision of the result, see <i>Rules for Arithmetic Assignments, Precision of Results for Arithmetic Operations</i> (in the <i>Programming Guide</i>).</p>

Syntax Element	Description
REMAINDER <i>operand4</i>	<p>REMAINDER Clause:</p> <p>The remainder of the division is placed into the field specified in <i>operand4</i>.</p> <p>If the GIVING and REMAINDER clause are used together, none of the four operands may be an array range.</p> <p>Internally, the remainder is computed as follows:</p> <ol style="list-style-type: none"> 1. The quotient of the division of <i>operand1</i> into <i>operand2</i> is computed. 2. The quotient is multiplied by <i>operand1</i>. 3. The product of this multiplication is subtracted from <i>operand2</i>. 4. The result of this subtraction is assigned to <i>operand4</i>. <p>For each of these steps, the rules described in <i>Precision of Results for Arithmetic Operations</i> in the <i>Programming Guide</i> apply.</p>

Example

```

** Example 'DIVEX1': DIVIDE
*****
DEFINE DATA LOCAL
1 #A (N7) INIT <20>
1 #B (N7)
1 #C (N3.2)
1 #D (N1)
1 #E (N1) INIT <3>
1 #F (N1)
END-DEFINE
*
DIVIDE 5 INTO #A
WRITE NOTITLE 'DIVIDE 5 INTO #A' 20X '=' #A
*
RESET INITIAL #A
DIVIDE 5 INTO #A GIVING #B
WRITE 'DIVIDE 5 INTO #A GIVING #B' 10X '=' #B
*
DIVIDE 3 INTO 3.10 GIVING #C
WRITE 'DIVIDE 3 INTO 3.10 GIVING #C' 8X '=' #C
*
DIVIDE 3 INTO 3.1 GIVING #D
WRITE 'DIVIDE 3 INTO 3.1 GIVING #D' 9X '=' #D
*
DIVIDE 2 INTO #E REMAINDER #F
WRITE 'DIVIDE 2 INTO #E REMAINDER #F' 7X '=' #E '=' #F
*
END

```

Output of Program DIVEX1:

```
DIVIDE 5 INTO #A          #A:      4
DIVIDE 5 INTO #A GIVING #B #B:      4
DIVIDE 3 INTO 3.10 GIVING #C #C:    1.03
DIVIDE 3 INTO 3.1 GIVING #D #D:     1
DIVIDE 2 INTO #E REMAINDER #F #E: 1 #F: 1
```