

Arithmetic Operations

The Bridge supports the following basic arithmetic operations: multiplication, division, subtraction, and addition.

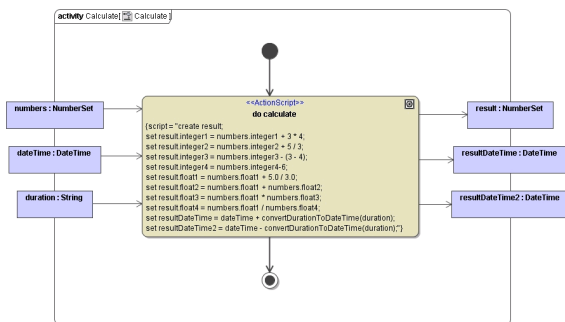
Example File (Builder project E2E Action Language/BaseTypes):



<your example path>\E2E Action Language\BaseTypes\uml\arithmetics.xml

It is allowed to put expressions into parentheses, e.g. $3 * (4 + 2)$ instead of $3 * 4 + 3 * 2$. Arithmetic expressions may be defined in the scripts section of action nodes. The first line in the example below creates the output object `result`. This is required before the attributes can be set. The following lines show examples of referencing the input values in mathematical operations.

Figure: Arithmetic Operations



If you provide the value 1 for `numbers.integer2`, the value of `result.Integer2` will be 2 (2.66 will be cut after the decimal point) because the result value is of type integer whereas the value of `result.float1` will be 2.66.

The variables and literals involved in an arithmetic expression must all be of the same type. This means you may not mix integers and floats. The expression `set result.float1 = 1 + 5 / 3` would cause a compilation error because 1, 5, and 3 are of type integer. If you want the result to be a float, you must specify the integers in float notation, thus appending `.0`.

DateTime Arithmetics

Besides doing arithmetic with numbers it is also possible to do **DateTime** arithmetic. It is allowed to add/subtract durations to/from a given **DateTime** object. The UML example above shows how to add one month to a given **DateTime** object:

```
set resultDateTime = dateTime + convertDurationToDateTime("P1M");
```

This is calculated e.g. as follows:

1. 31.01.2017 + 1 month = 31.02.2017
2. The resulting date 31.02.2017 is normalized to 03.03.2017.

In fact, these objects are represented as `DateTime` types but they are actually durations. For the exact lexical definition of duration, refer to [convertDurationToDateTime\(\) Operation](#).

You can also use dedicated `DateTime` operations for these arithmetics (see [DateTime Operations](#)), e.g. a [add\(\) / subtract\(\) Operation](#):

On this Page:

- [DateTime Arithmetics](#)

Related Pages:

- [convertDurationToDateTime\(\) Operation](#)
- [add\(\) / subtract\(\) Operation](#)
- [difference\(\) Operation](#)

```
create duration;  
set duration.months = 1;  
  
set resultDateTime = dateTime.add(duration);  
set resultDateTime = dateTime.subtract(duration);
```

Be careful with the following:

- It is not allowed to add up two dates.
- To find out the duration between two dates better use the `difference()` operation instead of subtracting them.