# Arithmetic

Big integer arithmetic is used so that numerical values can exceed machine size.

```
2^64
```

18446744073709551616

```
212^17
```

352947114576027513230189734205866171392

Rational number arithmetic is used by default.

```
1/2 + 1/3
```

$\frac{5}{6}$

Floating point arithmetic can also be used.

```
1/2 + 1/3.0
```

0.833333

The `float` function converts integers and rationals to floating point values.

```
float(212^17)
```

$3.52947 \times 10^{39}$

The following example shows how to enter a floating point value using scientific notation.

```
epsilon = 1.0 10^(-6)
epsilon
```

$\varepsilon = 1.0 \times 10^{-6}$