When `expr` involves only polynomial conditions, `Reduce[expr, vars, Reals]` gives a cylindrical algebraic decomposition of `expr`.

`Reduce` can give explicit representations for solutions to all linear equations and inequalities over the integers, and can solve a large fraction of Diophantine equations described in the literature.

The following options can be given:

- `Backsubstitution` False: whether to give results unwound by backsubstitution
- `Cubics` False: whether to use explicit radicals to solve all cubics
- `GeneratedParameters` C: how to name parameters that are generated
- `Modulus` 0: modulus to assume for integers
- `Quartics` False: whether to use explicit radicals to solve all quartics

`Reduce[expr, {n1, n2, ...}, Backsubstitution -> True]` yields a form in which values from equations generated for earlier `ni` are backsubstituted so that the conditions for a particular `ni` have only minimal dependence on earlier `ni`. 

**Details and Options**

**Examples**

**Basic Examples**

Reduce equations and inequalities:

- `Reduce[y^2 == x^3 - x + 1 && y < 0, x]`
- `Reduce[x^2 + y^2 == 1 && x > 0, {x, y}]`

Use specific domains:

- `Reduce[y^2 == x^3 - x + 1 && y < 0, x, Reals]`