

**Solving Equations**

Solving an equation means to isolate a variable on one side of the equal sign with everything else on the other side. We have already seen the Isolate operation. You can solve with this. You can solve manually using your own algebraic steps.

You may run into equations for which you have no immediate idea on how to solve. The Compute menu has several options.

**Factoring**

If you have a polynomial equation you could factor it. First gather all terms on the left hand side so that there is a zero on the right hand side. Highlight the equation. Locate the Macros: Solving SubMenu in the Computer Menu. Select Solve by Factoring.

LiveMath will Factor and then set each factor to 0.

**Newton**

There are many numerical methods for solving equations. Some methods are better in particular situations. All of them have situations where they do not work. Newton's method is available in the Compute Menu. Highlight the equation and select Solve by Newton's Method from the Computer/Solving Menu.

$x^2 + 1 = 0$

NewtonSeed = 1

$x_0 = \text{SolveNewton}(x^2 + 1, \text{NewtonSeed}, 20)$ Solve By Newton's Method

$x_0 = 1$ Calculate

This method requires a starting guess called **NewtonSeed**. You can change this value to hunt around for other solutions.



Now It's Your Turn... Follow the directions below to get hands on experience.



1.

The equation

$$x^3 - 1.91x^2 - 3.72x = 0$$

has three solutions.

Use Newton's Method to find a solution near 3.