3.3 Solving Equations

When you solve an equation you find values for the variables in the equation that make the equation true. When you solve an equation given as a function, $y = f(x)$, you find values for x and y which make $y = f(x)$ true; geometrically, this is equivalent to finding points $(x,\ y)$ on the graph of the function f. When you solve the equation, $f(x) = 0$, you find the *zeros of the function* f; geometrically, this is equivalent to finding the points of intersection of the graph of the function with the x-axis.

3.3.1 `solve(`

This feature is available in both the `Algebra` menu (on the Home Screen) and the `CATALOG`. To access this feature, select `solve(` from the `Algebra` menu. The command requires that you input an equation and the variable. Type the equation and the variable directly into the command line, then close the parenthesis and press ENTER. The solution will be displayed in the history area. See Figure 70.

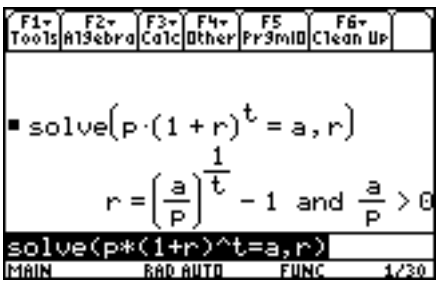

Figure 70: `solve(`

When an equation has complex solutions the complete answer is not displayed. In this case use the `cSolve(` command in the `Algebra Complex` menu. This command requires the same inputs, and produces all real and complex solutions. See Figure 71.

Of course, the TI-89 will automatically perform symbolic calculations if an entirely symbolic equation is entered. Your TI-89 contains other features with which you can compute solutions to equations. These will be described below in Section 3.4.

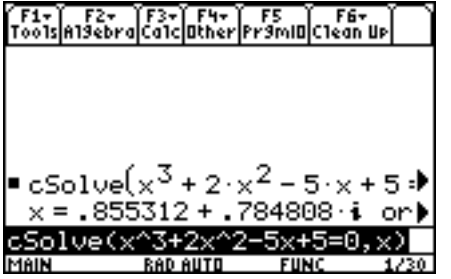

Figure 71: `cSolve(`