**Using Maple to solve nonlinear problems**

**Below is the brief description of codes:**

**Calling Sequence**

 NLPSolve(**obj**, **constr**, **bd**, **opts**)

 NLPSolve(**opfobj**, **ineqcon**, **eqcon**, **opfbd**, **opts**)

**Parameters**

 obj - **algebraic**; objective function

 constr - (optional) **set(relation)** or **list(relation)**; constraints

 bd - (optional) sequence of **name = range**; bounds for one or more variables

 opfobj - **procedure**; objective function

 ineqcon - (optional) **set(procedure)** or **list(procedure)**; inequality constraints

 eqcon - (optional) **set(procedure)** or **list(procedure)**; equality constraints

 opfbd - (optional) sequence of ranges; bounds for all variables

 opts - (optional) equation(s) of the form **option = value** where **option** is one of **assume**, **feasibilitytolerance**, **infinitebound**, **initialpoint**, **iterationlimit**, **maximize**, **method**, **optimalitytolerance**, or **output**; specify options for the **NLPSolve** command

Now let’s look at an example.

Maximize

subject to

and

with(Optimization):

CS:={2\*x[1]+x[2]<=3};

z:=ln(x[1]+1)+x[2];

NLPSolve(CS, z, assume=nonnegative, maximize);

And when you type the codes above, MAPLE will return you the optimal answer:

**> **

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