



Remember

1. SETS Structures consisting of indices or names
2. DATA SCALARS (zero-dimensional), PARAMETERS (one-dimensional), and TABLES (multi-dimensional)
Determination of values of input parameters
3. VARIABLES Variables or arrays of variables
Declaration with assigning a type of variable
Declaration of limits for possible changes, initial level
4. EQUATIONS Equations or complexes and arrays of equations (includes both declaration and definition)
5. MODEL Model declaration (which equations to include)
6. SOLVE Method of solution (which algorithm to use)
7. OUTPUT Output of information to files

Perform the following exercise: (Note: Use NLP)

$$\text{Max } (x + 2) * (y + 1)$$

Subject to

$$4x + 6y = 130$$

```
Untitled_1.gms  Untitled_1.lst
variables x, y, f;
equations obj, c1;

obj.. f=e=(x+2) * (y+1);
c1.. 4*x + 6*y =e= 130;

model ex1 /all/

solve ex1 using nlp MAXIMIZING f;

display x.l, y.l, f.l;
```

Semi-colon at the end

lp for linear programming
nlp for nonlinear programming
=l= less than or equal to
=g= greater than or equal to
=e= equal to

.L

Assignment

Solve the following using NLP

1. Min $(x + 3)^2 * y^2$

Subject to

$$2x + y \leq 30$$

$$x + y = 20$$

2. Max $x^3 * (y + 1)^2$

Subject to

$$3x + 5y \leq 100$$

$$2y \leq 30$$

Due to **Next Lab** (Cover Page – Print Screen the model – Print Screen the result)

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