

# Projeto Integrador II

## GLPK

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## Download:

`http://winglpk.sourceforge.net/`

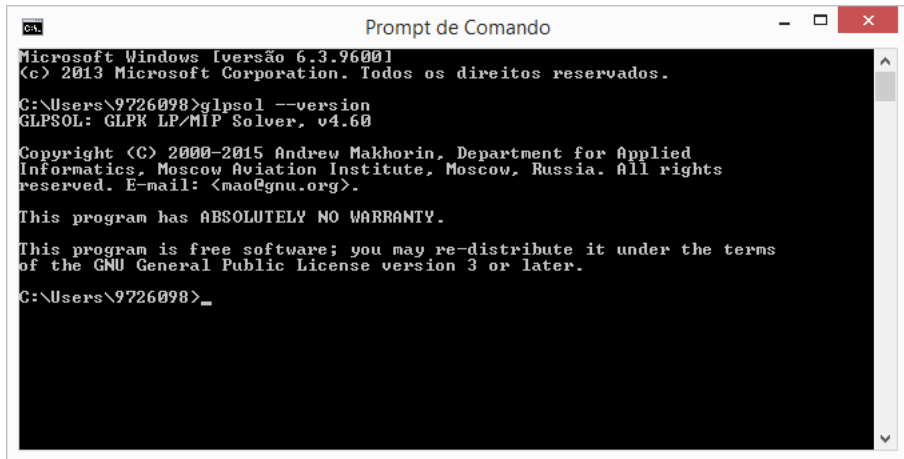
## Adicionar ao PATH:

`%DIRETÓRIO DO GLPK%\w64`

## Adicionar ao CLASSPATH:

`%DIRETÓRIO DO GLPK%\w64\glpk-java.jar`

# GLPK - Se o GLPK estiver funcionando corretamente...



```
Microsoft Windows [versão 6.3.9600]
(c) 2013 Microsoft Corporation. Todos os direitos reservados.

C:\Users\9726098>glpsol --version
GLPSOL: GLPK LP/MIP Solver, v4.60

Copyright (C) 2000-2015 Andrew Makhorin, Department for Applied
Informatics, Moscow Aviation Institute, Moscow, Russia. All rights
reserved. E-mail: <mao@gnu.org>.

This program has ABSOLUTELY NO WARRANTY.

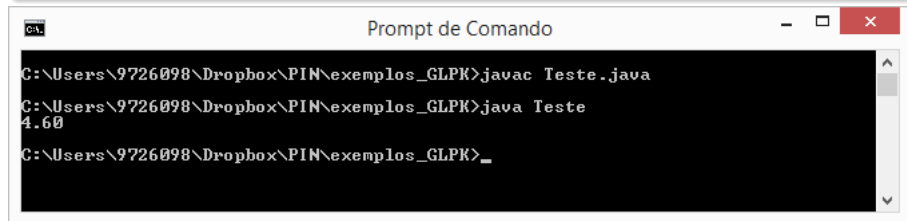
This program is free software; you may re-distribute it under the terms
of the GNU General Public License version 3 or later.

C:\Users\9726098>_
```

# GLPK - Se a ligação java - GLPK estiver funcionando...

## Teste.java

```
import org.gnu.glpk.GLPK;  
public class Teste {  
    public static void main ( String [] args ) {  
        System.out.println ( GLPK.glp_version () );  
    }  
}
```



```
C:\Users\9726098\Dropbox\PIN\exemplos_GLPK>javac Teste.java  
C:\Users\9726098\Dropbox\PIN\exemplos_GLPK>java Teste  
4.60  
C:\Users\9726098\Dropbox\PIN\exemplos_GLPK>_
```

# GLPK - Resolvendo um problema linear

*maximize*

$$z = 10x_1 + 6x_2 + 4x_3$$

*sujeito a*

$$x_1 + x_2 + x_3 \leq 100$$

$$10x_1 + 4x_2 + 5x_3 \leq 600$$

$$2x_1 + 2x_2 + 6x_3 \leq 300$$

$$x_1 \geq 0$$

$$x_2 \geq 0$$

$$x_3 \geq 0$$

problema.lp

Maximize

$$z: 10x_1 + 6x_2 + 4x_3$$

Subject To

$$r1: x_1 + x_2 + x_3 \leq 100$$

$$r2: 10x_1 + 4x_2 + 5x_3 \leq 600$$

$$r3: 2x_1 + 2x_2 + 6x_3 \leq 300$$

Bounds

$$x_1 \geq 0$$

$$x_2 \geq 0$$

$$x_3 \geq 0$$

End

# GLPK - Resolvendo um problema linear

```

C:\Users\9726098\Dropbox\PIN\exemplos_GLPK>glpsol --lp primeirolp.lp -o resultado.txt
GLPSOL: GLPK LP/MIP Solver, v4.60
Parameter(s) specified in the command line:
--lp primeirolp.lp -o resultado.txt
Reading problem data from 'primeirolp.lp'...
primeirolp.lp:13: warning: missing final end of line
3 rows, 3 columns, 9 non-zeros
13 lines were read
GLPK Simplex Optimizer, v4.60
3 rows, 3 columns, 9 non-zeros
Preprocessing...
3 rows, 3 columns, 9 non-zeros
Scaling...
A: min|aij| = 1.000e+00 max|aij| = 1.000e+01 ratio = 1.000e+01
Problem data seem to be well scaled
Constructing initial basis...
Size of triangular part is 3
* 0: obj = -0.000000000e+00 inf = 0.000e+00 (3)
* 2: obj = 7.333333333e+02 inf = 0.000e+00 (0)
OPTIMAL LP SOLUTION FOUND
Time used: 0.0 secs
Memory used: 0.0 Mb (32408 bytes)
Writing basic solution to 'resultado.txt'...

C:\Users\9726098\Dropbox\PIN\exemplos_GLPK>
```

Código no moodle