

 admin
 Toggle
 Home
 Published
 Log
 Settings
 Help

 Report a Problem
 Sign out

Save & quit

Discard & quit

Linear Programming

ast edited on February 20, 2013 11:05 AM by admin



Let's start making a linear program!

```
p = MixedIntegerLinearProgram(maximization=False, solver="GLPK");
```

Add variables w_0, w_1, w_2, w_3 .

```
w = p.new_variable();
```

Set $w_i \ge 0$.

```
for i in range(4):
    p.set_min(w[i], 0);
    p.set_integer(w[i]);
w
```

MIPVariable of dimension 1.

Add constraints.

$$w_0 + w_1 + w_2 - 14w_3 = 0$$

```
p.add_constraint( w[0] + w[1] + w[2] - 14*w[3] == 0 );
```

```
p.add_constraint( w[1] + 2*w[2] -8*w[3] == 0);
p.add_constraint( 2*w[2] - 3*w[3] == 0);
p.add_constraint( w[0] - w[1] - w[2] >= 0 );
p.add_constraint( w[3] >= 1);
```

```
p.set_objective( w[0] + w[3] );
```

```
p.show();
```

```
Minimization: x_0 + x_3
```

localhost:8000/home/admin/26/

```
Constraints:
       0.0 \le x \ 0 + x \ 1 + x \ 2 - 14.0 \ x \ 3 \le 0.0
       0.0 \le x_1 + 2.0 x_2 - 8.0 x_3 \le 0.0
       0.0 \le 2.0 \times 2 - 3.0 \times 3 \le 0.0
       -x_0 + x_1 + x_2 \le 0.0
       -x 3 <= -1.0
       0.0 \le x_0 + x_1 + x_2 - 14.0 x_3 \le 0.0
       0.0 \le x_1 + 2.0 x_2 - 8.0 x_3 \le 0.0
       0.0 \le 2.0 \times 2 -3.0 \times 3 \le 0.0
       -x_0 + x_1 + x_2 <= 0.0
       -x 3 <= -1.0
    Variables:
       x_0 is an integer variable (min=0.0, max=+oo)
       x_1 is an integer variable (min=0.0, max=+oo)
       x_2 is an integer variable (min=0.0, max=+oo)
       x 3 is an integer variable (min=0.0, max=+oo)
 p.solve()
    17.0
 p.get_values( [ w[i] for i in range(4) ] );
    [15.0, 10.0, 3.0, 2.0]
<u>evaluate</u>
```

localhost:8000/home/admin/26/



localhost:8000/home/admin/26/