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--- LAB 7 LUIS KLIGMAN ---

```
clear all;
close all;
clc;
```

PROBLEM 1

```
disp('')
% x1 + 150 = x2 --> x1 - x2 = -150
% x2 = x3 + 250 --> x2 - x3 = 240
% x3 + 100 = x4 --> x3 - x4 = -100
% x4 = x5 + 80  --> x4 - x5 = 80
% x5 + 160 = x6 --> x5 - x6 = -160
% x6 = x1 + 90  --> x6 - x1 = 90

A = [ 1, -1,  0,  0,  0,  0;
      0,  1, -1,  0,  0,  0;
      0,  0,  1, -1,  0,  0;
      0,  0,  0,  1, -1,  0;
      0,  0,  0,  0,  1, -1;
     -1,  0,  0,  0,  0,  1 ]
b = [-150; 240; -100; 80; -160; 90]
% Ax = b
```

```
A =

     1    -1     0     0     0     0
     0     1    -1     0     0     0
     0     0     1    -1     0     0
     0     0     0     1    -1     0
     0     0     0     0     1    -1
    -1     0     0     0     0     1


b =

  -150
   240
  -100
    80
  -160
```

```
    90
```

PROBLEM 2

```
disp('')
% x2 = x1 + 150
% x3 = x1 - 90
% x4 = x1 + 10
% x5 = x1 - 70
% x6 = x1 + 90
% Free variable t = x1

xp = [0; 150; -90; 10; -70; 90];
basis = [1;1;1;1;1;1];
syms t
x_general = xp + t * basis
```

```
x_general =

      t
t + 150
 t - 90
 t + 10
 t - 70
 t + 90
```

PROBLEM 3

```
disp('')
% t_min = max(-x_p,i) = max(0, -150, 90, -10, 70, -90) = 90
% Therefore
% x_min = x_p + 90 = [0, 150, -90, 10, -70, 90] + [90, 90, 90, 90, 90]
%                  = [90; 240; 0; 100; 20; 180]
x_min = [90; 240; 0; 100; 20; 180]
```

```
x_min =

    90
   240
     0
   100
    20
   180
```

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