

(a) Las variables serian: x1, x2, x3, x4, x5, x6, x7.

(b) El sistema es:

A:

```
[[ 1  0  1  0  0  0  0]
 [ 1 -1  0  1  0  0  0]
 [ 0  1  0  0 -1  0  0]
 [ 0  0  0  0 -1  0  1]
 [ 0  0  0  1  0  1 -1]
 [ 0  0  1  0  0  1  0]]
```

x:

```
[['x1'], ['x2'], ['x3'], ['x4'], ['x5'], ['x6'], ['x7']]
```

b:

```
[800 200 600  50 600 750]
```

(c) Por el metodo Householder, se tienen:

Q:

```
[[-0.70710678  0.40824829  0.28867513  0.2236068 -0.18257419 -0.40824829]
 [-0.70710678 -0.40824829 -0.28867513 -0.2236068  0.18257419  0.40824829]
 [-0.          0.81649658 -0.28867513 -0.2236068  0.18257419  0.40824829]
 [-0.          0.          0.          0.          0.91287093 -0.40824829]
 [-0.          0.          0.         -0.89442719 -0.18257419 -0.40824829]
 [-0.          0.          0.8660254 -0.2236068  0.18257419  0.40824829]]
```

R:

```
[[-1.41421356e+00  7.07106781e-01 -7.07106781e-01 -7.07106781e-01
  0.00000000e+00  0.00000000e+00  0.00000000e+00]
 [ 0.00000000e+00  1.22474487e+00  4.08248290e-01 -4.08248290e-01
 -8.16496581e-01  0.00000000e+00  0.00000000e+00]
 [ 0.00000000e+00  0.00000000e+00  1.15470054e+00 -2.88675135e-01
  2.88675135e-01  8.66025404e-01  0.00000000e+00]
 [ 0.00000000e+00  0.00000000e+00  0.00000000e+00 -1.11803399e+00
  2.23606798e-01 -1.11803399e+00  8.94427191e-01]
 [ 0.00000000e+00  0.00000000e+00  0.00000000e+00  0.00000000e+00
 -1.09544512e+00 -2.21838274e-16  1.09544512e+00]
 [ 0.00000000e+00  0.00000000e+00  0.00000000e+00  0.00000000e+00
  0.00000000e+00 -9.57010444e-18  1.38777878e-17]]
```

QR:

```
[ [ 1.00000000e+00  1.11022302e-16  1.00000000e+00 -2.49800181e-16
    8.32667268e-17  9.99200722e-17 -1.16687886e-16]
  [ 1.00000000e+00 -1.00000000e+00 -2.22044605e-16  1.00000000e+00
    -5.55111512e-17 -9.99200722e-17  8.89323100e-17]
  [ 0.00000000e+00  1.00000000e+00  0.00000000e+00 -2.77555756e-17
    -1.00000000e+00 -1.83186799e-16  1.44443461e-16]
  [ 0.00000000e+00  0.00000000e+00  0.00000000e+00  0.00000000e+00
    -1.00000000e+00 -1.98602732e-16  1.00000000e+00]
  [ 0.00000000e+00  0.00000000e+00  0.00000000e+00  1.00000000e+00
    1.66533454e-16  1.00000000e+00 -1.00000000e+00]
  [ 0.00000000e+00  0.00000000e+00  1.00000000e+00 -1.11022302e-16
    8.32667268e-17  1.00000000e+00  8.89323100e-17]]
```

b:

```
[56. 25. 62. 41. 10. 47.]
```

x:

```
[-1.15178511e+18 -3.21913442e+01  1.15178511e+18  1.15178511e+18
  1.87747671e+02 -1.15178511e+18  0.00000000e+00]
```

Ax:

```
[ 768.          256.          -219.93901498 -187.74767078 -256.
  256.          ]
```