Exercise1_605

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```
library('pracma')
```

```
## Warning: package 'pracma' was built under R version 3.4.3
```

```
A = matrix(
  c(-2, -1, -8, 8, 4, -9, -1, -1, -18,
    3, 3 ,-2, 5, 2, -2,-5,1,2,15,10,
    4,-2,8,0,2,-14,0,-2,2,36,-1,2,1,-6,
    0, 7,-1,0,-3,-8,3,2,13,-14,-1,1,5,
    0,-1,12,15,-2,2,-2,-4,1,6,
    -2,-2,-15,-7),
  nrow=6,
  ncol=10,
  byrow = T
)
rref(A)
```

```
##      [,1] [,2] [,3] [,4] [,5] [,6] [,7] [,8] [,9] [,10]
## [1,]    1    0    3   -2    0   -1    0    0    3     6
## [2,]    0    1    2   -4    0    3    0    0    2    -1
## [3,]    0    0    0    0    1   -2    0    0   -1     3
## [4,]    0    0    0    0    0    0    1    0    4     0
## [5,]    0    0    0    0    0    0    0    1    2    -2
## [6,]    0    0    0    0    0    0    0    0    0     0
```

the variables x3, x4, x6 and x9 are free the rest of the equations:

$$x_1 + 3x_3 - 2x_4 - x_6 + 3x_9 = 6$$

$$x_2 + 2x_3 - 4x_4 + 3x_6 + 2x_9 = -1$$

$$x_5 - 2x_6 - x_9 = 3$$

$$x_7 + 4x_9 = 0$$

$$x_8 + 2x_9 = -2$$