```
>> u = [1 2 3]

u =

     1     2     3

>> A = [1 2 3; 3 7 1]

A =

     1     2     3
     3     7     1

>> A = [1 2 3; 3 7 1; 4 -5 3]

A =

     1     2     3
     3     7     1
     4    -5     3

>> v = [1; 2; 3]

v =

     1
     2
     3

>> size(A)

ans =

     3     3

>> [r, c] = size(A)

r =

     3


c =

     3

>> eye(3, 5)

ans =

     1     0     0     0     0
     0     1     0     0     0
     0     0     1     0     0

>> eye(5, 3)

ans =
```

```
     1     0     0
     0     1     0
     0     0     1
     0     0     0
     0     0     0

>> eye(3, 3)

ans =

     1     0     0
     0     1     0
     0     0     1

>> zeros(3, 5)

ans =

     0     0     0     0     0
     0     0     0     0     0
     0     0     0     0     0

>> B = ones(3, 5)

B =

     1     1     1     1     1
     1     1     1     1     1
     1     1     1     1     1

>> rand(3, 5)

ans =

    0.0046    0.8687    0.2599    0.9106    0.1455
    0.7749    0.0844    0.8001    0.1818    0.1361
    0.8173    0.3998    0.4314    0.2638    0.8693

>> C = rand(3, 5)

C =

    0.5797    0.8530    0.5132    0.2399    0.2400
    0.5499    0.6221    0.4018    0.1233    0.4173
    0.1450    0.3510    0.0760    0.1839    0.0497


>> diag(C)

ans =

    0.5797
    0.6221
    0.0760

>> C(3, 2)

ans =
```

```
    0.3510

>> D = rand(6)

D =

    0.9027    0.3692    0.0965    0.2348    0.6491    0.7447
    0.9448    0.1112    0.1320    0.3532    0.7317    0.1890
    0.4909    0.7803    0.9421    0.8212    0.6477    0.6868
    0.4893    0.3897    0.9561    0.0154    0.4509    0.1835
    0.3377    0.2417    0.5752    0.0430    0.5470    0.3685
    0.9001    0.4039    0.0598    0.1690    0.2963    0.6256

>> D(2,:) = []

D =

    0.9027    0.3692    0.0965    0.2348    0.6491    0.7447
    0.4909    0.7803    0.9421    0.8212    0.6477    0.6868
    0.4893    0.3897    0.9561    0.0154    0.4509    0.1835
    0.3377    0.2417    0.5752    0.0430    0.5470    0.3685
    0.9001    0.4039    0.0598    0.1690    0.2963    0.6256

>> E = eye(5, 6)

E =

     1     0     0     0     0     0
     0     1     0     0     0     0
     0     0     1     0     0     0
     0     0     0     1     0     0
     0     0     0     0     1     0

>> F = D + E

F =

    1.9027    0.3692    0.0965    0.2348    0.6491    0.7447
    0.4909    1.7803    0.9421    0.8212    0.6477    0.6868
    0.4893    0.3897    1.9561    0.0154    0.4509    0.1835
    0.3377    0.2417    0.5752    1.0430    0.5470    0.3685
    0.9001    0.4039    0.0598    0.1690    1.2963    0.6256

>> G = rand(6, 2)

G =

    0.7802    0.4468
    0.0811    0.3063
    0.9294    0.5085
    0.7757    0.5108
    0.4868    0.8176
    0.4359    0.7948

>> H = F*G

H =
```

```
    2.4268    2.2548
    2.6546    2.7387
    2.5428    1.8551
    2.0537    1.7903
    1.8254    2.1998

>> H'

ans =

    2.4268    2.6546    2.5428    2.0537    1.8254
    2.2548    2.7387    1.8551    1.7903    2.1998

>> rref(H)

ans =

     1     0
     0     1
     0     0
     0     0
     0     0

>> rank(A)

ans =

     3

>> rank(H)

ans =

     2

>> A = [3 2 1; 0 1 0; 1 2 0]

A =

     3     2     1
     0     1     0
     1     2     0

>> b = [1:3]

b =

     1     2     3


>> c = b'

c =

     1
     2
     3
```

```
>> Ab = [A c]

Ab =

     3     2     1     1
     0     1     0     2
     1     2     0     3

>> x = A\c

x =

    -1
     2
     0

>> rref(Ab)

ans =

     1     0     0    -1
     0     1     0     2
     0     0     1     0

>> Ainv = inv(A)

Ainv =

    0.0000   -2.0000    1.0000
         0    1.0000         0
    1.0000    4.0000   -3.0000
```