

Diagonal matrices can be formed with the `diag` command.

```
>> v = [1 2 3 4 5]
>> diag(v) % a matrix with the elements of v in the diagonal
```

The command `eye(n)` returns the  $n \times n$  identity matrix. The command `zeros(n)` returns the  $n \times n$  zero matrix

```
>> eye(3) % the 3x3 identity
>> 2*I % the scalar matrix with 2's along the diagonal
>> zeros(4) % the 4x4 zero matrix
```

We can transpose a matrix with the `'` operator. The transpose operator has the same precedence as powers.

```
>> A = magic(5) % returns a 5x5 magic square
>> A' % returns the transpose of A
>> v = [1 2 3 4 5] % a row vector
>> v' % a column vector with the entries of v
```

Partitioned matrices are formed by using the usual matrix notation with matrices as its entries, The sizes just have to make sense.

```
>> B = [2; 3]
>> C = [1 -1 0]
>> D = [9 8 -4; 6 7 5]
>> [B D]
>> [D; C]
>> [[D; C] C']
```