

### Matlab notes for Math 210 HW 3

You can use the `toeplitz` command to make a matrix with constant entries on diagonals. `c` will be the first column of the matrix

and `r` will be its first row. The `zeros` and `ones` comand make matrices of all zeros or all ones.

```
c=[8;5;zeros(3,1)]; r=[8,3,ones(1,3)]; K=toeplitz(c,r)
```

```
K = 5x5
    8     3     1     1     1
    5     8     3     1     1
    0     5     8     3     1
    0     0     5     8     3
    0     0     0     5     8
```

To solve  $Kx=b$  for  $x$ , let  $x=K\b$ .

```
b=2*ones(5,1); x=K\b
```

```
x = 5x1
    0.1800
    0.0366
    0.1786
    0.0583
    0.2136
```

Use the `plot` command to plot points made from corresponding components of the two vector inputs. To get coordinates from one to 5 on the horizontal axis we create the transpose of a vector as follows. Then plot the two variables. the points are joined by line segments.

```
i=(1:5)';
plot(i,x)
```

