

An additional, optional numerical output is the location of the bins. This output can be obtained with one of the following commands:

```
[n xout]=hist(y)
```

```
[n xout]=hist(y,nbins)
```

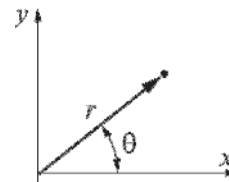
`xout` is a vector in which the value of each element is the location of the center of the corresponding bin. For example, for the histogram in Figure 5-11:

```
>> [n xout]=hist(y)
n =
    2    3    2    7    3    6    0    3    0    4
xout =
    50.2500    54.7500    59.2500    63.7500    68.2500    72.7500
    77.2500    81.7500    86.2500    90.7500
```

The vector `xout` shows that the center of the first bin is at 50.25, the center of the second bin is at 54.75, and so on.

5.9 POLAR PLOTS

Polar coordinates, in which the position of a point in a plane is defined by the angle θ and the radius (distance) to the point, are frequently used in the solution of science and engineering problems. The `polar` command is used to plot functions in polar coordinates. The command has the form:



```
polar(theta,radius,'line specifiers')
```

Vector

Vector

(Optional) Specifiers that define the type and color of the line and markers.

where `theta` and `radius` are vectors whose elements define the coordinates of the points to be plotted. The `polar` command plots the points and draws the polar grid. The line specifiers are the same as in the `plot` command. To plot a function $r = f(\theta)$ in a certain domain, a vector for values of θ is created first, and then a vector `r` with the corresponding values of $f(\theta)$ is created using element-by-element calculations. The two vectors are then used in the `polar` command.