

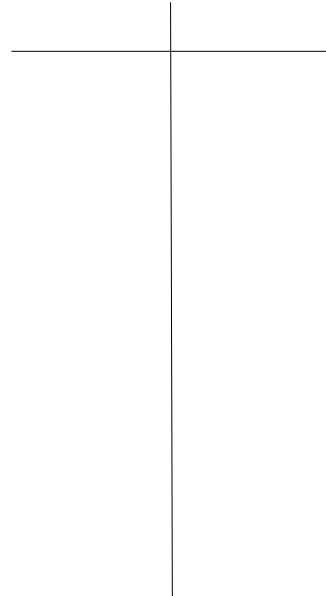
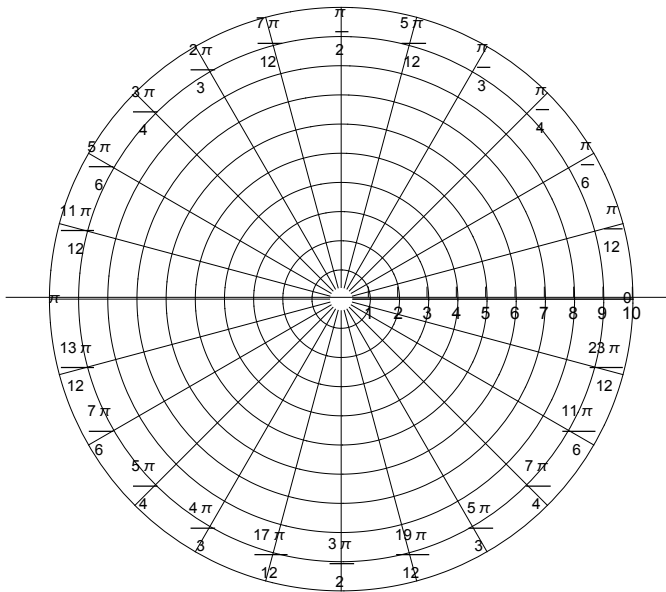
## 8.2 Graphs of Polar Equations

Polar Function Explorer

Polar Functions in the form  $r = a + b \sin(\theta)$  or  $r = a + b \cos(\theta)$

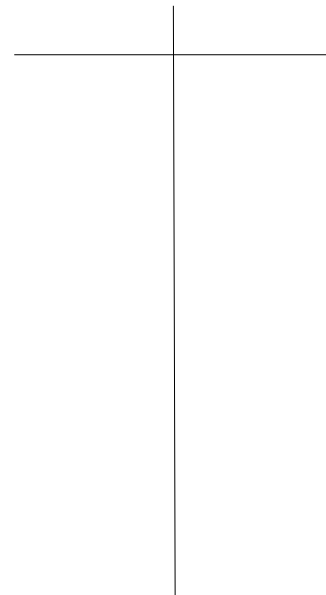
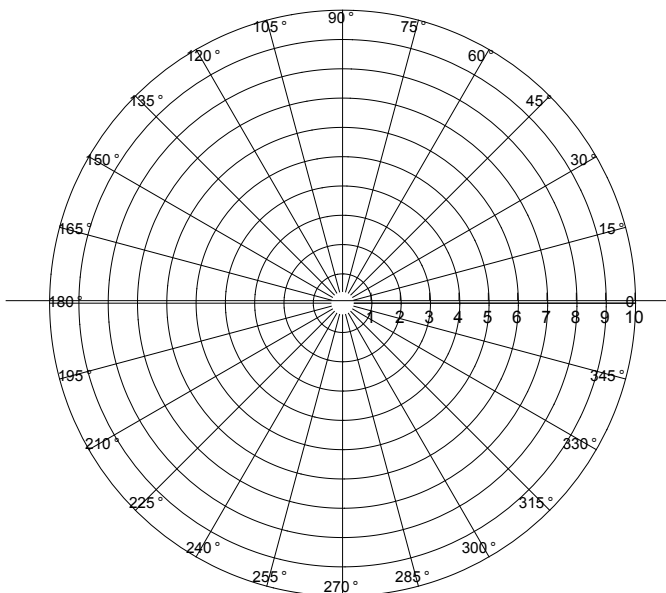
**Cardioids:**  $a = b$

**Example 1** Graph the function  $r = 4 + 4 \cos(\theta)$



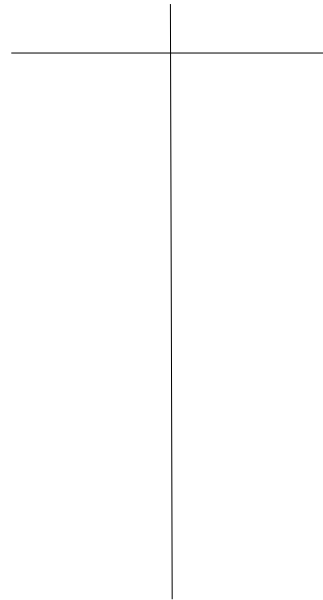
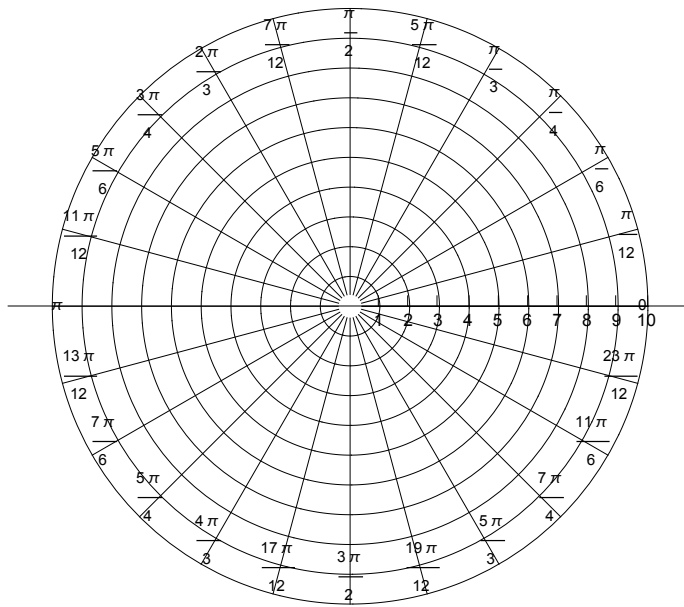
**Limaçon:**  $a > b$

**Example 2** Graph the function  $r = 5 + 3 \sin(\theta)$



**Limaçon with a Loop:  $a < b$**

**Example 3** Graph the function  $r = 3 + 5 \cos(\theta)$



**Polar Functions in the form  $r = a \sin(n\theta)$  or  $r = a \cos(n\theta)$**

**Roses**

**Example 4** Graph the function  $r = 7 \cos(4\theta)$  and  $r = 6 \sin(3\theta)$

