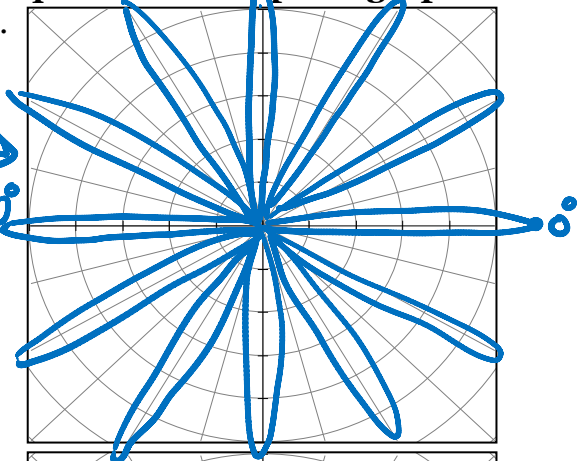


Determine the equation and then draw a graph the equation on the polar graph.

- 1) Rose centered at the origin with 12 petals of length 6.

$r = 6 \cos 6\theta$   
or  $r = 6 \sin 6\theta$

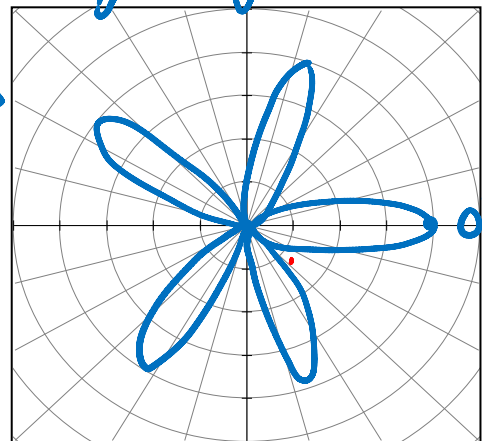
$n=6$     $a=6$   
spacing =  $\frac{360}{12} = 30^\circ$



- 2) Rose centered at the origin with 5 petals of length 8.

$r = 8 \cos 5\theta$   
or  $r = 8 \sin 5\theta$

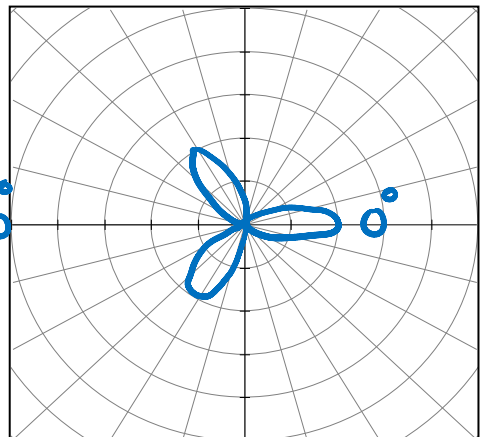
$n=5$     $a=8$   
spacing =  $\frac{360}{5} = 72^\circ$   
by 2



- 3) Rose centered at the origin with 3 petals of length 2, one petal that lies on the positive x-axis.

$r = 2 \cos 3\theta$

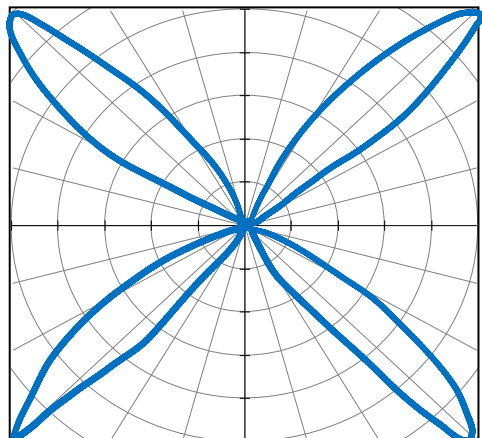
$n=3$     $a=2$   
spacing =  $\frac{360}{3} = 120^\circ$   
COS

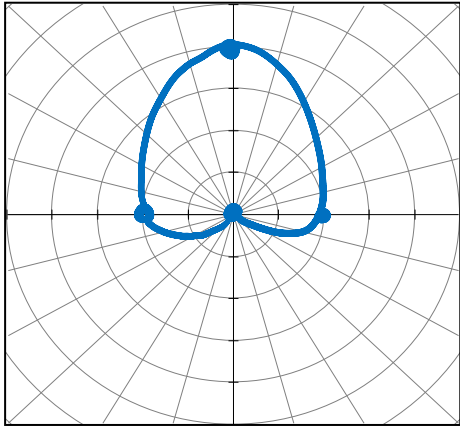


- 4) Rose centered at the origin with 4 petals of length 7, reflexive about both axes.

$r = 7 \cos 2\theta$   
or  $r = 7 \sin 2\theta$

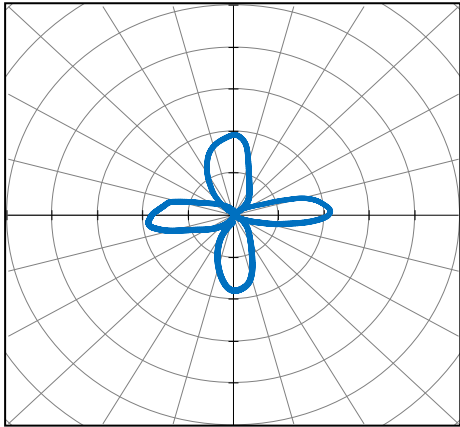
start =  $\frac{90}{2} = 45^\circ$   
spacing =  $\frac{360}{4} = 90^\circ$





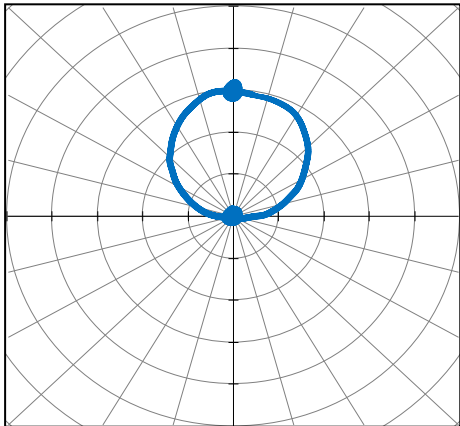
5.  $r(\theta) = 2 + 2 \sin \theta$

- A) Name of curve cardioid
- B) x-intercepts -2, 0, 2
- C) y-intercepts 0, 4
- D) Symmetry y-axis



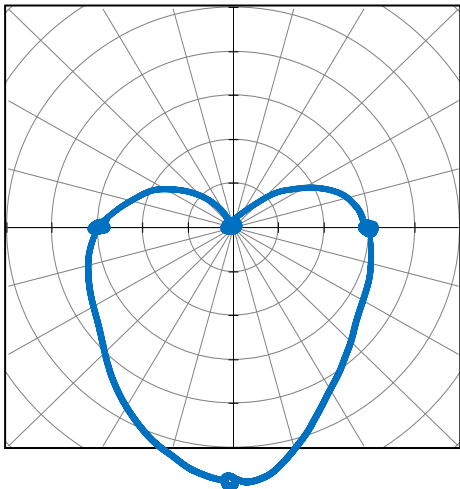
6.  $r(\theta) = 2 \cos 2\theta$

- a) Name of curve Rose
- b) Number of Petals 4
- c) Angle of 1<sup>st</sup> petal 0°
- d) Angle between petals  $\frac{360}{4} = 90^\circ$
- e) Length of petals 2
- f) Symmetry x-axis, y-axis,



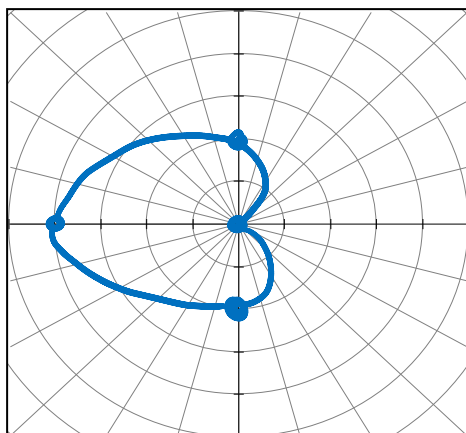
7.  $r(\theta) = 3 \sin \theta$

- A) Name of curve circle
- B) x-intercepts 0
- C) y-intercepts 0, 3
- D) Symmetry y-axis



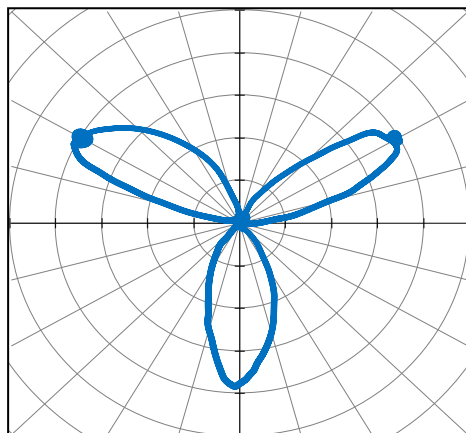
8.  $r(\theta) = 3 - 3 \sin \theta$

- A) Name of curve cardioid
- B) x-intercepts -3, 0, 3
- C) y-intercepts 0, -6
- D) Symmetry y-axis



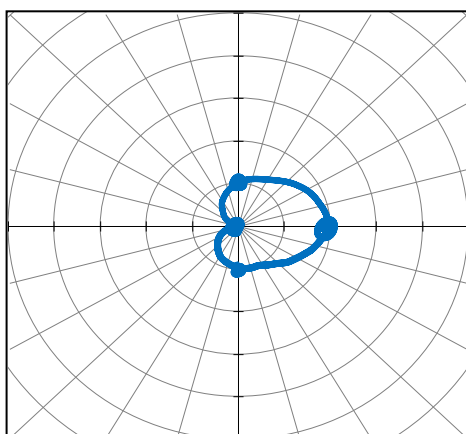
9.  $r(\theta) = 2 - 2\cos\theta$

- A) Name of curve cardioid
- B) x-intercepts -4, 0
- C) y-intercepts -2, 0, 2
- D) Symmetry x-axis



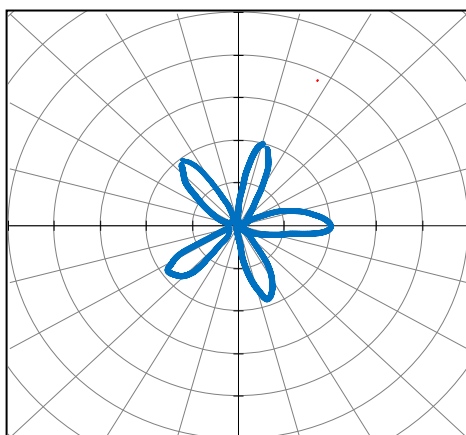
10.  $r(\theta) = 4\sin 3\theta$

- A) Name of curve Rose
- B) Number of Petals 3
- C) Angle of 1<sup>st</sup> petal  $\frac{90}{3} = 30^\circ$
- D) Angle between petals  $\frac{360}{3} = 120^\circ$
- E) Length of petals 4
- F) Symmetry y-axis



11.  $r(\theta) = -1 + 1\cos\theta$

- no change*  
A) Name of curve cardioid
- B) x-intercepts 0, 2
- C) y-intercepts -1, 1, 0
- D) Symmetry x-axis



12.  $r(\theta) = 2\cos 5\theta$

- A) Name of curve Rose
- B) Number of Petals 5
- C) Angle of 1<sup>st</sup> petal  $0^\circ$
- D) Angle between petals  $\frac{360}{5} = 72^\circ$
- E) Length of petals 2
- F) Symmetry x-axis