3.14A Polar Function Graphs

AP Precalculus

Name: _____

CA #2

Use the polar function to answer the following. Fill in the table.

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

Type:

Line Circle Rose

Opens: Petals:

Cycle:

θ	r
$\frac{\pi}{6}$	
π	

2. $r = 3\sin(5\theta)$

Type:

Line Circle Rose

Opens: Petals:

Cycle:

θ	r
$\frac{\pi}{3}$	
$\frac{\pi}{2}$	

3. $r = 8$

Type:

Line Circle Rose

Center: Petals:

Cycle:

θ	r
$\frac{\pi}{4}$	
$\frac{3\pi}{2}$	

Use the polar function to answer the following. Find the endpoints of the given domain.

4. $r = 6\sin(\theta)$

Type:

Line Circle Rose

Opens: Petals:

Cycle:

Endpoints of $\frac{\pi}{6} \le \theta \le \frac{\pi}{3}$

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

Type:

Line Circle Rose

Opens: Petals:

Cycle:

Endpoints of $\frac{\pi}{2} \le \theta \le \frac{2\pi}{3}$

6. $r = -8\cos(\theta)$

Type:

Line Circle Rose

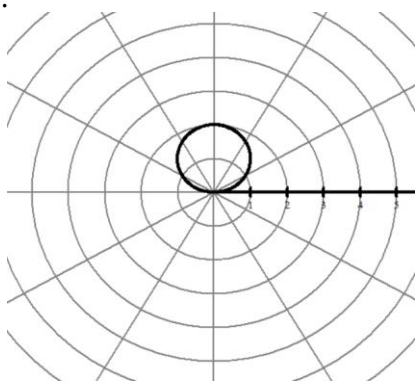
Opens: Petals:

Cycle:

Endpoints of $\frac{7\pi}{6} \le \theta \le \frac{3\pi}{2}$

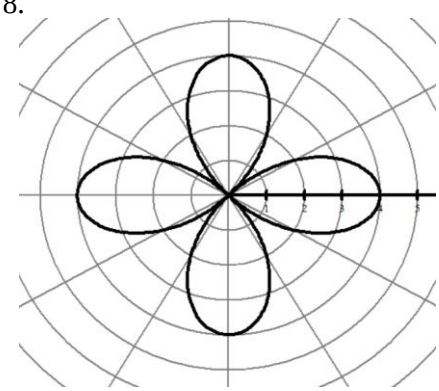
Write the equation of the polar function. State the cycle and any symmetry.

7.



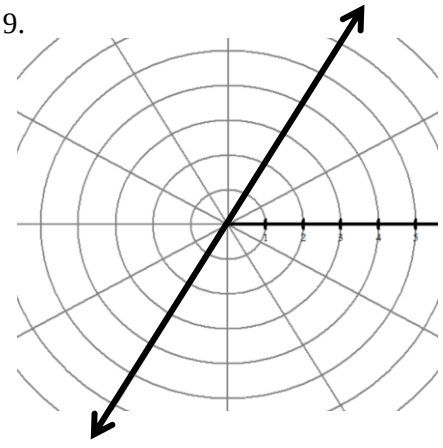
Equation:

8.



Equation:

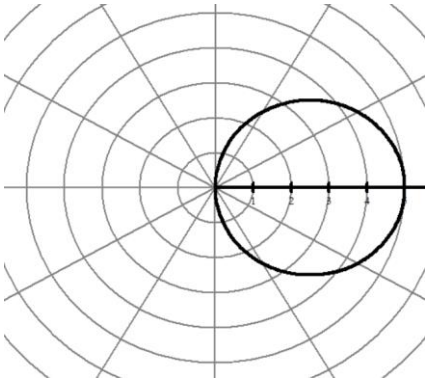
9.



Equation:

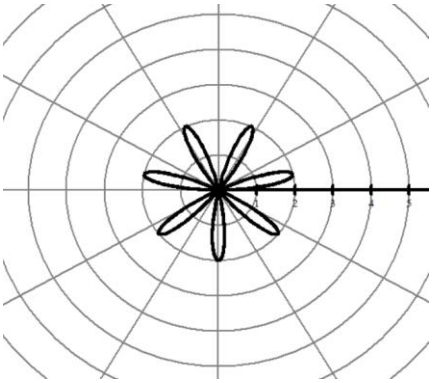
Write the equation of the polar function. State the cycle and any symmetry.

10.



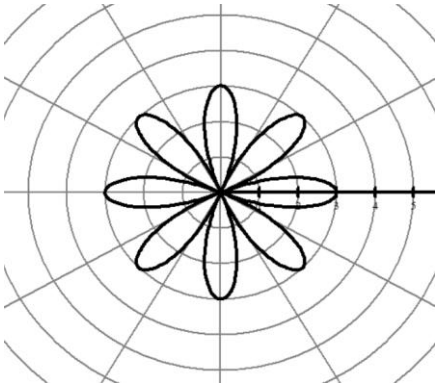
Equation:

11.



Equation:

12.



Equation:

Answers to 3.14A CA #2

1.
Rose with 12 petals
Cycle: $[0,2\pi]$

$\boldsymbol{\theta}$	$\boldsymbol{r}$
$\frac{\pi}{6}$	-2
π	2

2.
Rose with 5 petals
Cycle: $[0,\pi]$

$\boldsymbol{\theta}$	$\boldsymbol{r}$
$\frac{\pi}{3}$	$-\frac{3\sqrt{3}}{2}$
$\frac{\pi}{2}$	3

3.
Circle with center at pole
Cycle: $[0,2\pi]$

$\boldsymbol{\theta}$	$\boldsymbol{r}$
$\frac{\pi}{4}$	8
$\frac{3\pi}{2}$	8

4.
Circle opens up
Cycle: $[0,\pi]$

Endpoints: $\left(3,\frac{\pi}{6}\right), \left(3\sqrt{3},\frac{\pi}{3}\right)$

5.
Rose with 4 petals
Cycle: $[0,2\pi]$

Endpoints: $\left(-5,\frac{\pi}{2}\right), \left(-\frac{5}{2},\frac{2\pi}{3}\right)$

6.
Circle opens left
Cycle: $[0,\pi]$

Endpoints: $\left(4\sqrt{3},\frac{7\pi}{6}\right), \left(0,\frac{3\pi}{2}\right)$

7.
Equation: $r = 2\sin(\theta)$

8.
Equation: $r = 4\cos(2\theta)$

9.
Equation: $\theta = \frac{\pi}{3}$

10.
Equation: $r = 5\cos(\theta)$

11.
Equation: $r = 2\sin(7\theta)$

12.
Equation: $r = 3\cos(4\theta)$