

3.14A Polar Function Graphs

AP Precalculus

Name: _____

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

1. $r = 8 \cos(4\theta)$

Type:

Line Circle Rose
 Opens: Opens: Petals:

Cycle:

θ	r
$\frac{\pi}{6}$	
π	

2. $r = -7 \sin(\theta)$

Type:

Line Circle Rose
 Opens: Opens: Petals:

Cycle:

θ	r
$\frac{\pi}{3}$	
$\frac{\pi}{2}$	

3. $r = 7$

Type:

Line Circle Rose
 Center: 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. $r = 6 \sin(5\theta)$

Type:

Line Circle Rose
 Opens: Opens: Petals:

Cycle:

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

5. $r = 9 \cos(6\theta)$

Type:

Line Circle Rose
 Opens: Opens: Petals:

Cycle:

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

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

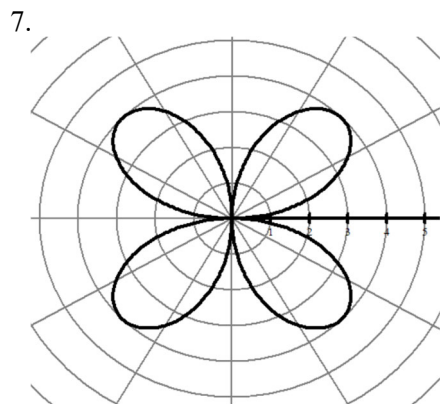
Type:

Line Circle Rose
 Opens: Opens: Petals:

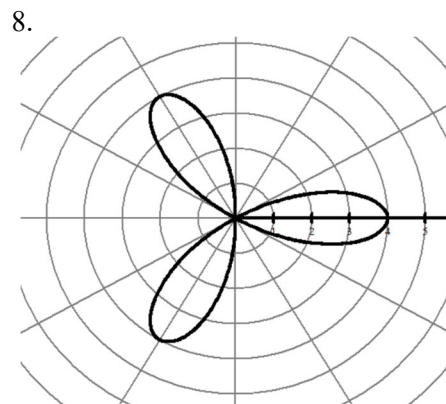
Cycle:

Endpoints of $\frac{\pi}{4} \leq \theta \leq \frac{3\pi}{2}$

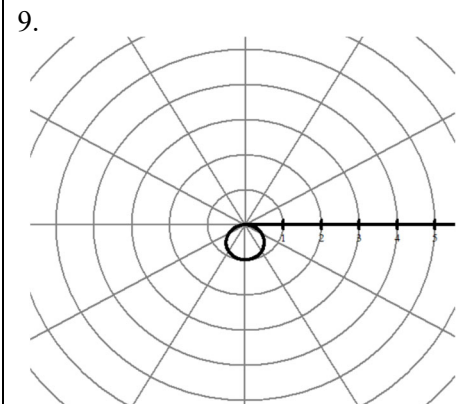
Write the equation of the polar function.



Equation:



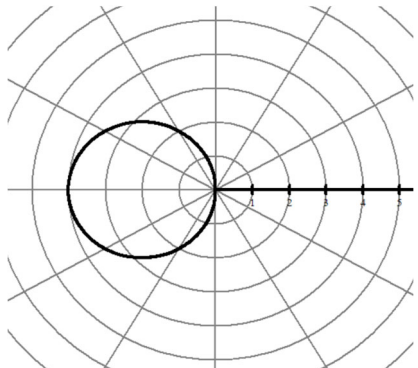
Equation:



Equation:

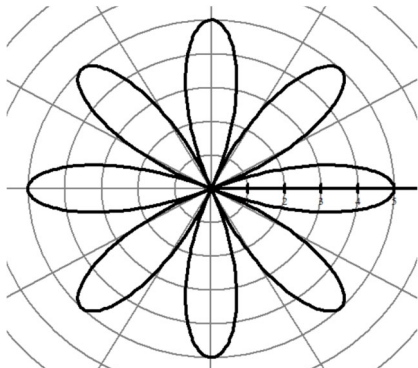
Write the equation of the polar function.

10.



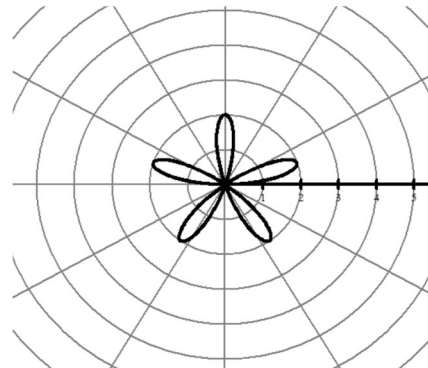
Equation:

11.



Equation:

12.



Equation:

Answers to 3.14A CA #1

<p>1. Rose with 8 petals Cycle: $[0, 2\pi]$</p> <table border="1" data-bbox="225 1085 524 1253"> <thead> <tr> <th>θ</th> <th>r</th> </tr> </thead> <tbody> <tr> <td>$\frac{\pi}{6}$</td> <td>-4</td> </tr> <tr> <td>π</td> <td>8</td> </tr> </tbody> </table>	θ	r	$\frac{\pi}{6}$	-4	π	8	<p>2. Circle opens down Cycle: $[0, \pi]$</p> <table border="1" data-bbox="677 1085 976 1253"> <thead> <tr> <th>θ</th> <th>r</th> </tr> </thead> <tbody> <tr> <td>$\frac{\pi}{3}$</td> <td>$-\frac{7\sqrt{3}}{2}$</td> </tr> <tr> <td>$\frac{\pi}{2}$</td> <td>-7</td> </tr> </tbody> </table>	θ	r	$\frac{\pi}{3}$	$-\frac{7\sqrt{3}}{2}$	$\frac{\pi}{2}$	-7	<p>3. Circle center is pole Cycle: $[0, 2\pi]$</p> <table border="1" data-bbox="1128 1085 1427 1253"> <thead> <tr> <th>θ</th> <th>r</th> </tr> </thead> <tbody> <tr> <td>$\frac{\pi}{4}$</td> <td>7</td> </tr> <tr> <td>$\frac{3\pi}{2}$</td> <td>7</td> </tr> </tbody> </table>	θ	r	$\frac{\pi}{4}$	7	$\frac{3\pi}{2}$	7
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<p>4. Rose with 5 petals Cycle: $[0, \pi]$</p> <p>Endpoints: $(3, \frac{\pi}{6}), (-3\sqrt{3}, \frac{\pi}{3})$</p>	<p>5. Rose with 12 petals Cycle: $[0, 2\pi]$</p> <p>Endpoints: $(9, \frac{\pi}{3}), (-9, \frac{\pi}{2})$</p>	<p>6. Circle opens right Cycle: $[0, \pi]$</p> <p>Endpoints: $(4\sqrt{2}, \frac{\pi}{4}), (0, \frac{3\pi}{2})$</p>																		
<p>7. Equation: $r = 4 \sin(2\theta)$</p>	<p>8. Equation: $r = 4 \cos(3\theta)$</p>	<p>9. Equation: $r = -\sin(\theta)$</p>																		
<p>10. Equation: $r = -4 \cos(\theta)$</p>	<p>11. Equation: $r = 5 \cos(4\theta)$</p>	<p>12. Equation: $r = 2 \sin(5\theta)$</p>																		