

The Secret of Graphing Cardioids Limacons, Roses and Random Shapes Pre Calculus 8....

Lesson 240 | Precalculus | Polar cardioids and roses

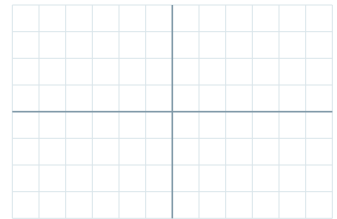
https://www.youtube.com/watch?v=DcAT_uKMy2Q

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Sketch $r=8(1+\cos \theta)$. Identify the curve, symmetry, maximum radius, and points at $\theta=0, \pi/2, \pi, 3\pi/2$.

**02**

Analyze the polar rose $r=4\cos(4\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

03

Analyze the polar rose $r=10\cos(3\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

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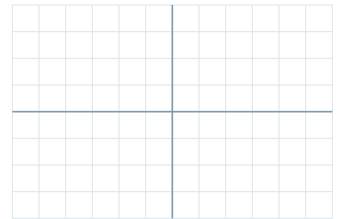
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04

Sketch $r=9(1+\cos \theta)$. Identify the curve, symmetry, maximum radius, and points at $\theta=0, \pi/2, \pi, 3\pi/2$.

**05**

Analyze the polar rose $r=10\cos(6\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

06

Analyze the polar rose $r=7\cos(6\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

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- 01** Sketch $r=8(1+\cos \theta)$. Identify the curve, symmetry, maximum radius, and points at $\theta=0, \pi/2, \pi, 3\pi/2$.

Cardioid symmetric about the polar axis. Maximum $r=16$ at $\theta=0$. Radius values 16,8,0,8; rectangular points (16,0),(0,8),(0,0),(0,-8).

- 02** Analyze the polar rose $r=4\cos(4\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

Petal count is n for odd n and $2n$ for even n : 8. Petal length 4. At $\theta=0, r=4$; hence a petal lies on the positive polar axis.

- 03** Analyze the polar rose $r=10\cos(3\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

Petal count is n for odd n and $2n$ for even n : 3. Petal length 10. At $\theta=0, r=10$; hence a petal lies on the positive polar axis.

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04

Sketch $r=9(1+\cos \theta)$. Identify the curve, symmetry, maximum radius, and points at $\theta=0, \pi/2, \pi, 3\pi/2$.

Cardioid symmetric about the polar axis. Maximum $r=18$ at $\theta=0$. Radius values 18,9,0,9; rectangular points (18,0),(0,9),(0,0),(0,-9).

05

Analyze the polar rose $r=10\cos(6\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

Petal count is n for odd n and $2n$ for even n : 12. Petal length 10. At $\theta=0, r=10$; hence a petal lies on the positive polar axis.

06

Analyze the polar rose $r=7\cos(6\theta)$. Give petal count, petal length, and one direction of maximum positive radius.

Petal count is n for odd n and $2n$ for even n : 12. Petal length 7. At $\theta=0, r=7$; hence a petal lies on the positive polar axis.