Watch. Practice. Understand. | Lesson 212

Pre Calculus 8 2 Graphing Polar Equations with Symmetry

Watch the matching video: https://www.youtube.com/watch?v=efrqDk0HdTg

Practice focus: Polar coordinates and graphs

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Convert polar (4, π/6) to rectangular coordinates.

02 Convert rectangular (-3, 3) to polar form with r > 0 and 0 <= θ < 2π.

03 Convert r = 4cos θ to a rectangular equation and identify the graph.

04 For r = 2sin3θ, find the number and length of petals.

Worked answers | Lesson 212

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Practice focus: Polar coordinates and graphs

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01 Convert polar (4, π/6) to rectangular coordinates.

x = r cos θ = 2√3; y = r sin θ = 2. Point: (2√3, 2).

02 Convert rectangular (-3, 3) to polar form with r > 0 and 0 <= θ < 2π.

r = √18 = 3√2; quadrant II gives θ = 3π/4.

03 Convert r = 4cos θ to a rectangular equation and identify the graph.

Multiply by r: $r^2 = 4r\cos\theta$, so $x^2 + y^2 = 4x$. Circle: $(x - 2)^2 + y^2 = 4$.

04 For r = 2sin3θ, find the number and length of petals.

For odd integer 3, there are 3 petals. Maximum |r| = 2, so each petal length is 2.