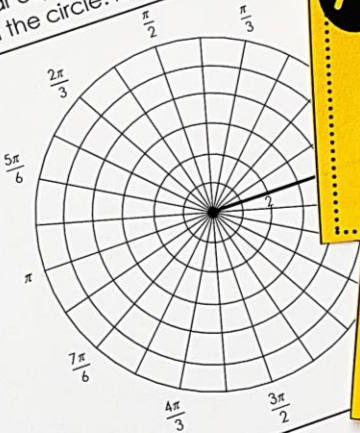


SORT & GRAPH ACTIVITY

CLASSIC POLAR CURVES Graphing Activity

Directions: Graph each polar equation in the row that corresponds to the letter of the equation in the circle. Identify the types of symmetry, maximum r-value, and minimum r-value.

Letter



A
 $r = 2 - 4 \sin \theta$

G
 $r = 2 \sin 3\theta$
 $(0 \leq \theta < 2\pi)$

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Graphing Classic POLAR CURVES

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Identifying & Graphing POLAR CURVES

Objective: To practice classifying and graphing classic polar curves, as well as identify types of symmetry, maximum r -values, and zeros. Types of polar curves include circles, limaçons (looped, cardioid, dimpled, and convex), roses (3-petal and 4-petal), lemniscates, and spirals. There are 9 total polar equations that students must identify and graph.

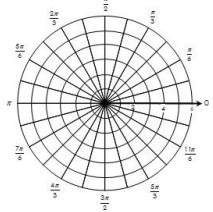
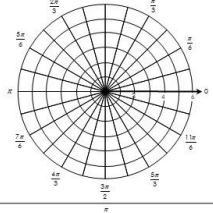
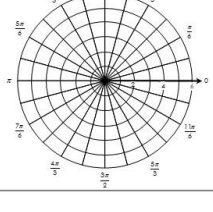
Activity Directions:

- (1) Distribute the 3-page graphing worksheet and the 9 cards with equations to each student. Or, you can also have students work in pairs. I recommend each individual student has a graphing worksheet, but only one set of cards per pair of students.
- (2) Students classify the equation on the card, then graph that equation in the row that corresponds to the type of polar curve. Then, they identify the types of symmetry, maximum r -values, and zeros.
- (3) The letters on the cards will make this assignment very easy to review.

3-PETAL ROSE	CONVEX LIMAÇON	DIMPLED LIMAÇON
SPIRAL	LEMNISCATE	4-PETAL ROSE
CARDIOID	INNER LOOP LIMAÇON	CIRCLE

CLASSIC POLAR CURVES Name: _____
 Graphing Activity Date: _____ Per: _____

Directions: Graph each polar equation in the row that corresponds to the type of polar curve. Record the letter of the equation in the circle. Identify the types of symmetry, maximum r -values, and zeros.

Letter: 	Equation: _____ Types of Symmetry: _____ Maximum r -Values: _____ Zeros: _____
Letter: 	Equation: _____ Types of Symmetry: _____ Maximum r -Values: _____ Zeros: _____
Letter: 	Equation: _____ Types of Symmetry: _____ Maximum r -Values: _____ Zeros: _____

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A $r = 2 - 4\sin\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>	B $r^2 = 64\sin 2\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>
C $r = 10\cos 2\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>	D $r = 3\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>
E $r = 3 - 3\cos\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>	F $r = 6 + 4\sin\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>
G $r = 2\sin 3\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>	H $r = 8 + \cos\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>
I $r = 5\cos\theta$ $(0 \leq \theta < 2\pi)$ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>	_____ <small>© Gina Wilson (All Things Algebra®, LLC), 2017</small>