

Dynamics of Trigonometry Polar Graphing Project

Big Idea: Graphing Polar Equations

Learning Goal: To gain understanding of using different polar equations to create unique designs.

Project Requirements:

- Complete a table of values for the given equations. Values on the table should be in simplest radical form along with decimal approximations to ease the point plotting process. If an exact value is not possible, use your calculator to find a decimal approximation.
- Both graphs should be plotted in degrees. In degrees, the increments of the angles should be 15° and include angles from 0° to 360° .
- Plot the points on the polar graphs you were given and sketch smooth curves.
- All points must appear and be labeled on the graphs. Use the labels from the tables provided. The graphs **must** be decorated.
- This will count as a **quiz grade** for the fourth marking period.
- This project is due _____. Each day the project is late, you will lose 10 pts.

Equations:

$$r = 8\sin 2\theta$$

$$r = 3 + 2\cos \theta$$

Graphing Requirements	Not Completed	Minimal Completion/Accuracy	Partial Completion/Accuracy	100% Completion/Accuracy
Table of values for two graphs with accurate calculations. Exact values are included where applicable.	0 points	20 points	30 points	40 points
Points plotted correctly by hand with neat and accurate curves for the two graphs.	0 points	20 points	30 points	40 points
Points correctly and neatly labeled on the graph.	0 points	4 points	7 points	10 points
Creativity/ effort for the decorations of the graphs.	0 points	4 points	7 points	10 points

$$r = 8 \sin 2\theta$$

θ in Degree measure	r	(r, θ)	Label
0°			A
15°			B
30°			C
45°			D
60°			E
75°			F
90°			G
105°			H
120°			I

θ in Degree measure	r	(r, θ)	Label
135°			J
150°			K
165°			L
180°			M
195°			N
210°			O
225°			P
240°			Q
255°			R
270°			S

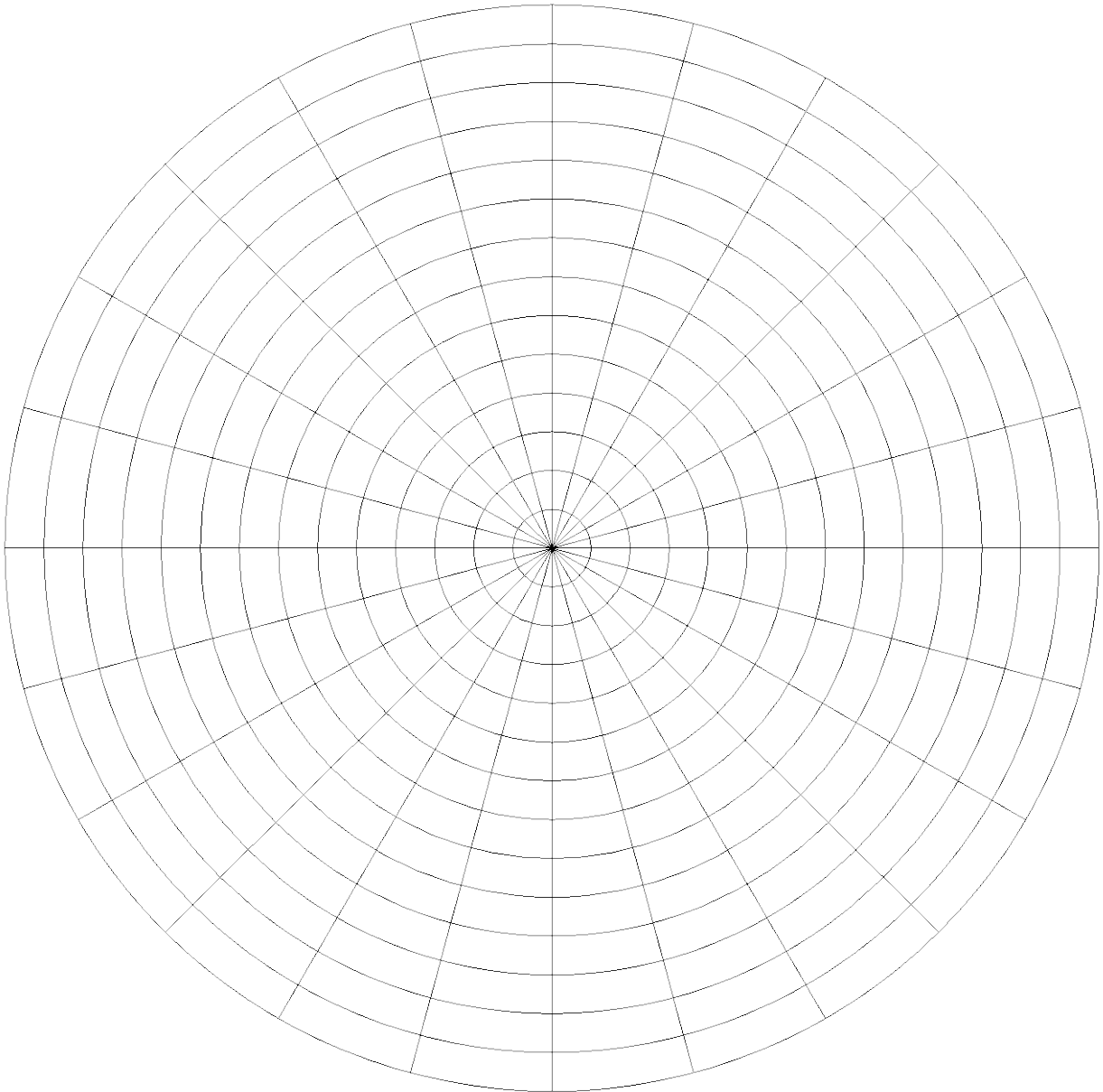
θ in Degree measure	r	(r, θ)	Label
285°			T
300°			U
315°			V
330°			W
345°			X
360°			Y

$$r = 3 + 2\cos\theta$$

θ in Degree measure	r	(r, θ)	Label
0°			A
30°			B
45°			C
60°			D
90°			E
120°			F
135°			G
150°			H
180°			I

θ in Degree measure	r	(r, θ)	Label
210°			J
225°			K
240°			L
270°			M
300°			N
315°			O
330°			P
360°			Q

$$r = 8 \sin 2\theta$$



$$r = 3 + 2 \cos \theta$$

