

"Neat" Polar Graphs

- 0) Setup (unless specified differently):
(for TI82 or TI83 calculators)
- MODE: Pol & Radian
ZOOM: 6 (ZStandard)
FORMAT: AxisOff & PolarGC (optional)

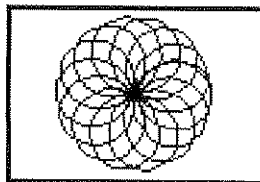
1) $Y = : r_1 = 4 \cos(64\theta)$

Window:

$[\theta_{\min}, \theta_{\max}] \theta_{\text{step}}: \theta [0, 39] 0.1$

$[X_{\min}, X_{\max}] X_{\text{step}}: X [-6, 6] 0$

$[Y_{\min}, Y_{\max}] Y_{\text{step}}: Y [-4, 4] 0$

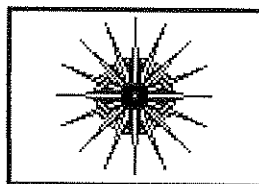


2) $Y = : r_1 = 4 \cos(64\theta)$

Window: $\theta [0, 2\pi] \pi/24$

$X [-6, 6] 0$

$Y [-4, 4] 0$



3) $Y = : r_1 = 4 \cos(3\theta)$

$r_2 = 4 \sin(3\theta)$

$r_3 = -4 \sin(3\theta)$

$r_4 = 4 \cos(6\theta)$

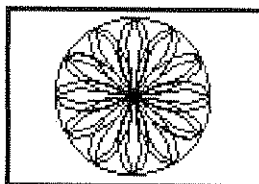
$r_5 = 4 \cos(3(\theta - \pi/3))$

$r_6 = 4$

Window: $\theta [0, 2\pi] \pi/24$

$X [-6, 6] 0$

$Y [-4, 4] 0$



4) $Y = : r_1 = 4 \cos(8\theta)$

$r_2 = 4 \cos(2\theta)$

$r_3 = 4 \cos(4\theta)$

$r_4 = 4 \sin(8\theta)$

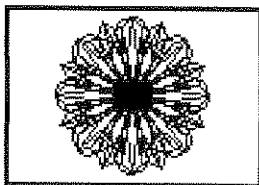
$r_5 = 4 \sin(4\theta)$

$r_6 = 4 \sin(2\theta)$

Window: $\theta [0, 2\pi] \pi/24$

$X [-6, 6] 0$

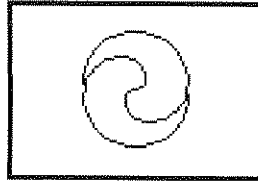
$Y [-4, 4] 0$



"Neat" Polar Graphs continued

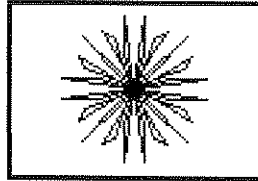
5) $Y = : r_1 = 3 \sin((1/3)\theta)$
 $r_2 = -3 \sin((1/3)\theta)$

Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



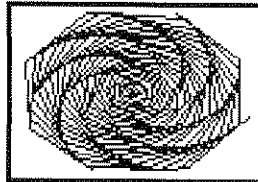
6) $Y = : r_1 = 3 \sin(10\theta)$

Window: $\theta [0, 2\pi] \pi/24$
 $X [-4.7, 4.7] 0$
 $Y [-3.1, 3.1] 0$



7) $Y = : r_1 = \theta$

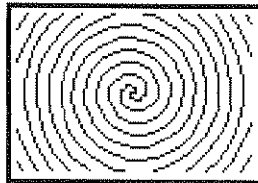
Window: $\theta [0, 157] 0.8$
 $X [-155, 155] 0$
 $Y [-140, 140] 0$



8) $Y = : r_1 = 2\theta$

$r_2 = -2\theta$

Window: $\theta [0, 40] 0.2$
 $X [-60, 60] 0$
 $Y [-40, 40] 0$



9) $Y = : r_1 = 0.25\theta$

Window: $\theta [0, 600] 0.5$
 $X [-60, 60] 0$
 $Y [-40, 40] 0$

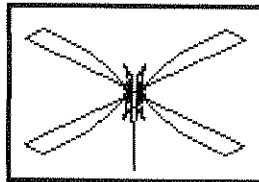
- a) graph with a θ step of 0.5
- b) graph with a θ step of 1.0
- c) graph with a θ step of 1.5
- d) graph with a θ step of 2.0
- e) graph with a θ step of 2.5 (best one?)
- f) graph with a θ step of 3.0
- g) graph with a θ step of 3.5

"Neat" Polar Graphs continued

10) $Y = : r_1 = 4 \cos(4 \sin(4 \cos(4 \sin(\cos(4 \sin(\tan(\theta)))))))$
 $r_2 = 4 \cos(\cos(\cos(\tan(\tan(\tan(\theta))))))$
 $r_3 = r_1 + r_2$

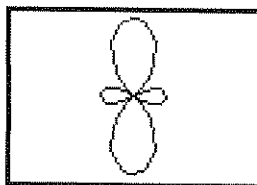
Note: r_1 & r_2 are not turned on
 only r_3 is turned on

Window: $\theta [0, 2\pi] \pi/24$
 $X [-7, 7] 0$
 $Y [-4, 4] 0$



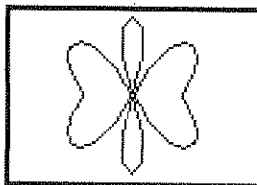
11) $Y = : r_1 = 4 \cos(2 \cos \theta)$

Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



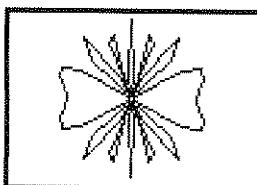
12) $Y = : r_1 = 4 \cos(4 \cos \theta)$

Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



13) $Y = : r_1 = 4 \cos(10 \cos \theta)$

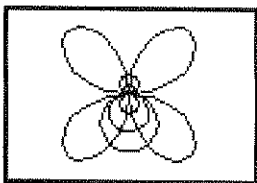
Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



14) $Y = : r_1 = 4 \cos(\theta) * 4 \sin(\theta)$

$r_2 = 0.5 \sin(\theta)$
 $r_3 = 1 \sin(\theta)$
 $r_4 = -3 \sin(\theta)$
 $r_5 = -2 \sin(\theta)$
 $r_6 = -1 \sin(\theta)$

Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



"Neat" Polar Graphs continued

15) $Y = : r_1 = 184 \tan(465\theta)$

$r_2 = 842 \sin(372\theta)$

$r_3 = 52 \cos(12\theta)$

Window: $\theta [0, 2\pi] \pi/24$

X [-6, 6] 0

Y [-4, 4] 0