

“Neat” Polar Graphs

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

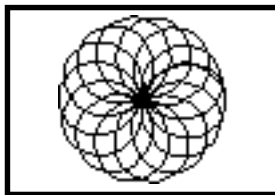
1) $Y = : r_1 = 4 \cos(64\theta)$

Window:

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

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

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

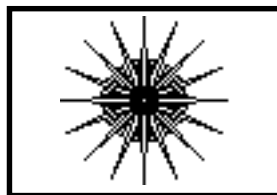


2) $Y = : r_1 = 4 \cos(64\theta)$

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

$$X [-6, 6] 0$$

$$Y [-4, 4] 0$$



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

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

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

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

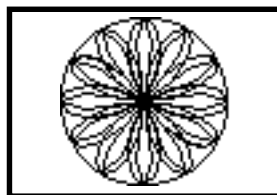
$$r_5 = 4 \cos(3(\theta - \pi/3))$$

$$r_6 = 4$$

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

$$X [-6, 6] 0$$

$$Y [-4, 4] 0$$



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

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

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

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

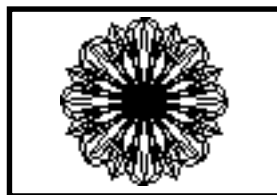
$$r_5 = 4 \sin(4\theta)$$

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

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

$$X [-6, 6] 0$$

$$Y [-4, 4] 0$$



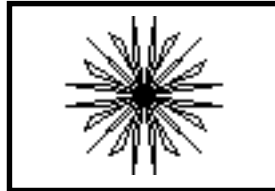
5) Y= : $r_1 = 3 \sin((1/3)\theta)$
 $r_2 = -3 \sin((1/3)\theta)$

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



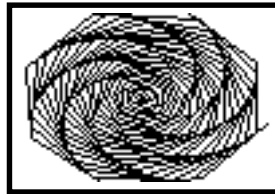
6) Y= : $r_1 = 3 \sin(10\theta)$

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



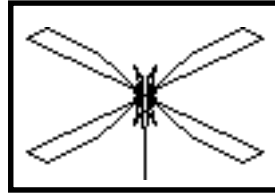
9) Y= : $r_1 = 0.25\theta$

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

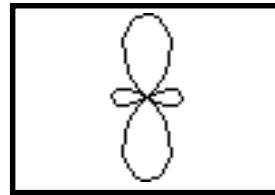


Note: r_1 & r_2 are not turned on
 only r_3 is turned on

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

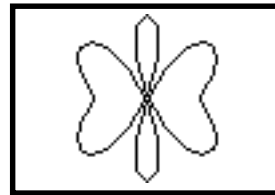
11) $Y = : r_1 = 4 \cos(2\cos(\theta))$

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



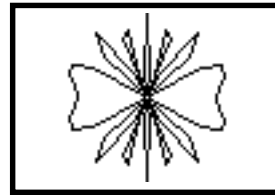
12) $Y = : r_1 = 4 \cos(4\cos(\theta))$

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



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

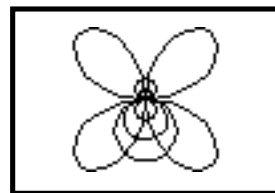
Window: $\theta [0, 2\pi] \pi/24$
 $X [-6, 6] 0$
 $Y [-4, 4] 0$



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



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