

Graphing in Polar Coordinates

Symmetry tests for Polar Graphs

1. Symmetry about the Pole axis (x-axis)

2. Symmetry about  $\theta = \frac{\pi}{2}$  (y-axis)

3. Symmetry about the Pole (origin)

If two symmetries exist then the third is true.

If a polar equation passes a symmetry test then

$$r = 2 - 2 \cos \theta$$

$$r^2 = -\cos \theta$$

The slope of a polar curve  $r = f(\theta)$  is given by  $\frac{dy}{dx}$  not by  $r' = \frac{df}{d\theta}$

$$r = -1 + \sin \theta \quad \theta = 0, \pi$$