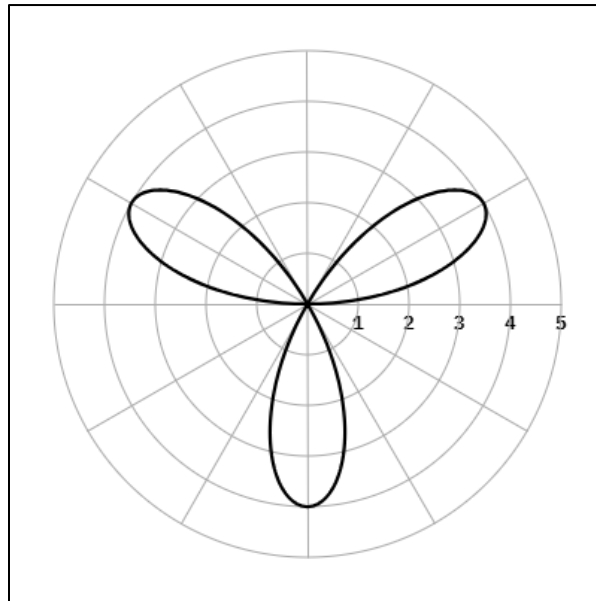


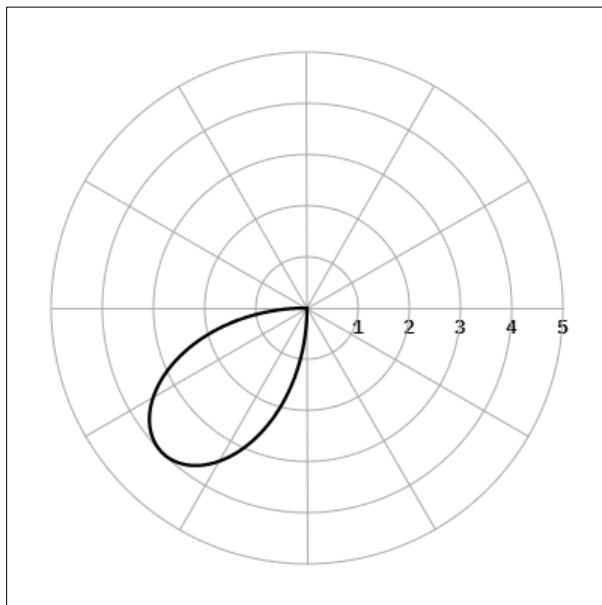
Practice Problem 1



The figure shows the graph of a polar function $r = f(\theta)$, for $0 \leq \theta \leq \pi$. Which of the following could be an expression for $f(\theta)$?

- A. $f(\theta) = 4\sin(3\theta)$
- B. $f(\theta) = 4\sin(6\theta)$
- C. $f(\theta) = 4\cos(3\theta)$
- D. $f(\theta) = 4\cos(6\theta)$

Practice Problem 2



A portion of the graph of the polar function $r = f(\theta)$, where $f(\theta) = 4\sin(2\theta)$, is shown in the polar coordinate system for $a \leq \theta \leq b$. If $0 \leq a < b \leq 2\pi$, which of the following could be the values of a and b ?

- A. $a = \frac{\pi}{2}$ and $b = \pi$
- B. $a = \frac{\pi}{4}$ and $b = \frac{3\pi}{4}$
- C. $a = \frac{\pi}{2}$ and $b = \frac{3\pi}{2}$
- D. $a = \pi$ and $b = \frac{3\pi}{2}$

Solutions:

Practice Problem 1 Solution:

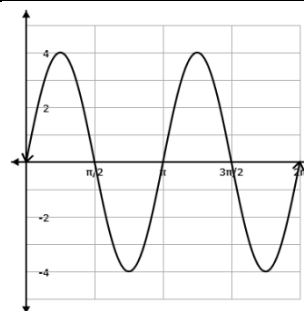
A. $f(\theta) = 4\sin(3\theta)$

This is the graph of a polar rose in the form of $f(\theta) = a\sin(n\theta)$. The length from the pole to the tip of a petal is 4 units so $a = 4$. There are an odd number of petals so n represents the number of petals and $n = 3$.

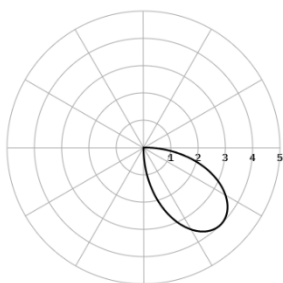
Practice Problem 2 Solution:

D. $a = \pi$ and $b = \frac{3\pi}{2}$

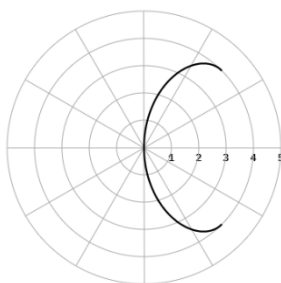
The graph of the sinusoidal function $f(\theta x) = 4\sin(2x)$ shown to the right is positive on the interval $[\pi, \frac{3\pi}{2}]$. On the interval $[\pi, \frac{3\pi}{2}]$ the polar rose has values of r which are positive so the points of the polar rose would be graphed in quadrant 3.



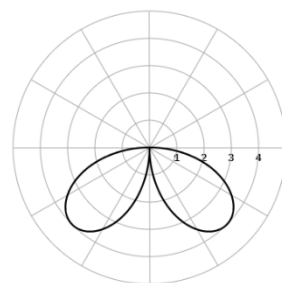
This is the graph corresponding to choice A.



This is the graph corresponding to choice B.



This is the graph corresponding to choice C.



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