

Check your understanding

6. Can the circle of radius 1 centered at $(x, y) = (2, 0)$ be represented as a polar curve $r = f(\theta)$ where θ ranges over an interval?

(a) Yes.

(b) No.

Answer: (b)

Explanation: There are two points on this circle, call them P and Q , such that the line through the origin and P is tangent to the circle, and the line through the origin and Q is tangent to the circle. The points P and Q divide the circle into two arcs. Each of these arcs can be represented as a polar curve $r = f(\theta)$. However to obtain both arcs one would need to allow θ to range over two different intervals.