

DIRECTIONS To receive full credit, you must provide complete legible solutions to the following problems in the space provided. No Attached papers. Transfer all your answers to the space provided

1. Find two other pairs of polar coordinates of the given polar coordinate, one with $r > 0$ and one with $r < 0$.
 $(4, 7\pi/4)$ Ans:

2. Find the distance between the points with polar coordinates Ans:
 $(4, \pi / 4)$ and $(8, 3\pi / 4)$

3. Find the slope of the tangent line to the given polar curve Ans:
at the point specified by the value of θ .
 $r = 9 \sin \theta, \quad \theta = \pi / 6$

4. Find the points on the given curve where the tangent line is horizontal or vertical. (Assume $0 \leq \theta \leq 2\pi$)

$$r = 1 + \cos \theta$$

Ans:

5. Sketch the region in the plane consisting of points whose polar coordinates satisfy the given conditions. $3 < r \leq 5$, $3\pi/4 \leq \theta \leq 5\pi/4$

6. Find a polar equation for the curve represented by the given Cartesian equation. $x + y = 9$

Ans: