Math 199 CD3 Merit Worksheet 23: Parametric Equation and Polar Coordinate

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1. Find the slope of the curve $x = t^2 + e^t$, $y = t + e^t$ at the point $(1, 1)$.

2. Find the arc length of the curve $x = e^t \cos t$, $y = e^t \sin t$, from $t = 0$ to $t = 1$

3. Give all possible polar representations of the point with Cartesian coordinates $(1, 1)$

4. Describe $r = 4\sin\theta$

5. Describe $r = 4\cos\theta$

6. Transform the rectangular equation $x + 2y = 3$ into a polar equation.