NAME:

S.No. ID:

Maximum Marks: 15 Section: Time Allowed: 40 minutes (1) Find the area of the region that lies inside the circle $r = 3sin\theta$ and outside $r = 1 + sin\theta$.

(2) Sketch the graph of the curve $r = 1 - 3\cos\theta$.

(3) Find the points (r, θ) on the curve $r = 1 + \cos\theta$ where the tangent line is vertical.