Math 001D Assignment 15.4 Ans_____

Instructions: Write complete solutions to the following problems in the space provided. Be sure to supply all the necessary steps that lead to your answers

1. Evaluate the given integral by changing to polar coordinates. Ans_____

$$\iint_D e^{-x^2-y^2}\,dA$$

where D is the region bounded by the semicircle $x = \sqrt{49 - y^2}$ and the y-axis.

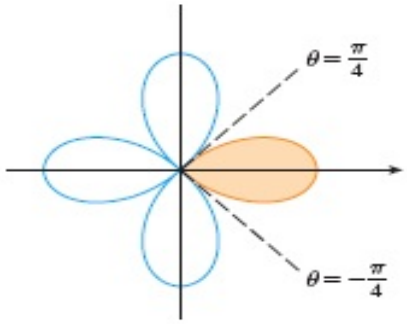
2. Evaluate the given integral by changing to polar coordinates. Ans_____

$$\iint_D x\,dA$$

where D is the region in the first quadrant that lies between the circles

$x^2 + y^2 = 16$ and $x^2 + y^2 = 4x$.

3. Use a double integral to find the area enclosed by a loop of the four leaved rose $r = 7\cos 2\theta$ Ans_____



4. Use polar coordinates to find the volume of the given solid. Ans_____

Above the cone $z = \sqrt{x^2 + y^2}$ and below the sphere $x^2 + y^2 + z^2 = 49$