

CALCULUS 3 - FALL 2017 - HOMEWORK 6

1,2) Find the area in the  $xy$  plane bounded by the figure eight curve  $r^2 = a \cos 2\theta$

3,4) Evaluate  $\iint_R \sqrt{x^2 + y^2} \, dx \, dy$  where  $R$  is the region bounded by  $x^2 + y^2 = 9$  and  $x^2 + y^2 = 4$ .

5,6) The cylinder given by  $x^2 + y^2 = 1$  intersects the cylinder given by  $x^2 + z^2 = 1$ . What is the volume of the resulting figure?