



Quiz 7



MATH 172 Lab: Sections 7 and 8

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Student's Name: **Mohammed Kaabar**Student's ID: **Solution***Note: This quiz covers parametric equations and polar coordinates.***Show your work and circle your answers. Neatness and organization count!****Question 1:** (3 points) Find the equation and draw the curve for the following parametric equations: $x = 5 \cos(t)$ and $y = 2 \sin(t)$ where $0 \leq t \leq 2\pi$.Solution:

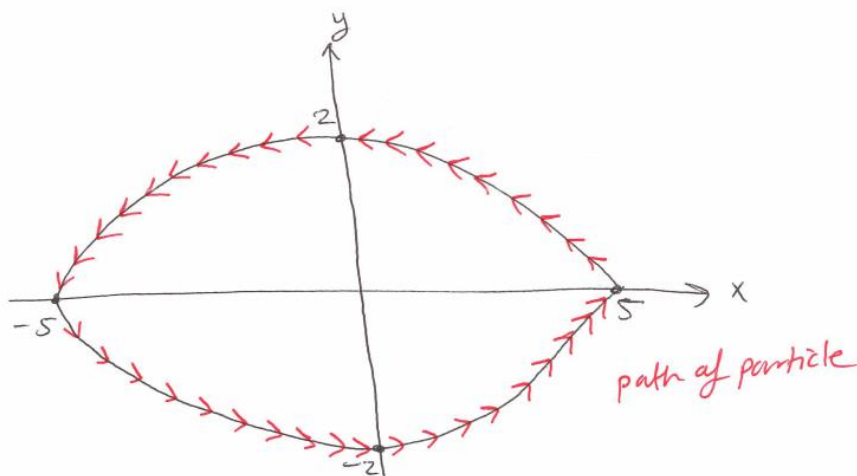
$$x = 5 \cos(t) \Rightarrow \frac{x}{5} = \cos(t)$$

$$y = 2 \sin(t) \Rightarrow \frac{y}{2} = \sin(t)$$

Then, we use trig identity: $\sin^2(t) + \cos^2(t) = 1$

$$\Rightarrow \left(\frac{x}{5}\right)^2 + \left(\frac{y}{2}\right)^2 = 1$$

$$\Rightarrow \boxed{\frac{x^2}{25} + \frac{y^2}{4} = 1}$$



Question 2: (2 points) Find the rectangular coordinates for the following polar coordinates:

$$r = 6 \cos(\theta)$$

Solutions

$$r = 6 \cos(\theta)$$

First, we multiply both sides by r , we obtain:

$$r^2 = 6r \cos(\theta)$$

$$x^2 + y^2 = 6x \Rightarrow x^2 - 6x + y^2 = 0 \text{ by completing the square}$$

we obtain: $x^2 - 6x + 9 + y^2 = 0 + 9 \Rightarrow (x-3)^2 + y^2 = 9$ Equation of circle centered $(3, 0)$ of radius $= 3$.

Solutions

