Student ID:

Student Name:

Serial Number:

Math 201, Section 12
Fall 2016, Term 161

Quiz 1
Version A

Instructions: Show Your Work!

1. (3 pts) A parametric curve is given by the equations

$$x = 2\cos t - 1 \quad \text{and} \quad y = 1 + \cos t.$$

Sketch the curve and indicate with an arrow the direction in which it is traced as the parameter increases from 0 to π.

2. (3 pts) A curve C is defined by the parametric equations

$$x = \theta^2 \quad \text{and} \quad y = 2\left(1 - \cos\theta\right), \quad 0 \le \theta \le 2\pi.$$

Find (if exist) the points on C where the tangent is horizontal or vertical.

3. (4 pts) Sketch the curve with polar equation

$$r = 2\cos\left(\frac{\theta}{2}\right), \quad 0 \le \theta \le 2\pi.$$

Student ID:

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Math 201, Section 15
Fall 2016, Term 161

Quiz 1
Version B

Instructions: Show Your Work!

1. (3 pts) Find the length of the curve

$$x = \cos(t) + t\sin(t), \quad y = \sin(t) - t\cos(t), \quad t \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right].$$

2. (3 pts) At what point(s) on the curve $x = t^2 + 4t$, $y = 6t^2$ is the tangent parallel to the line $y - 3x = 1$?

3. (4 pts) Sketch the curve with polar equation

$$r = \frac{1}{2} + \sin\theta, \quad 0 \le \theta \le 2\pi.$$