Student ID:

Student Name:

Serial Number:

MATH201, Section 2
Fall 2018, Term 181

Quiz 1
Version A

Instructions: Show Your Work!

1. (3 pts) Find equations of the tangents to the curve $x = 3t^2 + 1$, $y = 2t^3 + 1$ that pass through the point $(4, 3)$.

2. (3 pts) Convert the following polar equation to a Cartesian one.

$$r^2 = \frac{3}{2 + \cos(2\theta)}.$$

3. (4 pts) **Sketch** the region that lies inside the cardioid $r = 1 - \sin\theta$ and outside the circle $r = \frac{3}{2}$. Then **find its area**.

Student ID:

Student Name:

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MATH201, Section 3
Fall 2018, Term 181

Quiz 1
Version B

Instructions: Show Your Work!

1. (3 pts) At what point(s) on the curve $x = 3t^2 + 1$, $y = t^3 - 1$ does the tangent line have slope $\frac{1}{2}$?

2. (3 pts) Convert the following polar equation to a Cartesian one.

$$r^2 = \frac{3}{2 - \cos(2\theta)}.$$

3. (4 pts) **Sketch** the region that lies inside the cardioid $r = 1 + \cos\theta$ and outside the circle $r = \frac{3}{2}$. Then **find its area**.