Student Name:

- The quiz is closed book, closed notes, and calculator free. No form of collaboration or help is allowed.

- The quiz is **45 minutes** long. This time includes downloading, working on, and submitting a quiz **in a PDF format via Gradescope**.

- The quiz have **20 points** in total.

- There is **no extension or quiz retake**.

- Show your full work to receive a full credit on each problem.

1. **[10 points]** Evaluate the integral
$$\int_C e^x \, dx,$$
where C is the arc of the curve $x = y^3$ from $(-1, -1)$ to $(1, 1)$.

3. **[5 points]** Determine whether or not

$$F(x, y) = (y^2 - 2x)\,\mathbf{i} + 2xy\,\mathbf{j}$$

is a conservative vector field.

4. **[5 points]** Evaluate the following integral using Green's Theorem

$$\oint_C y\,dx - x\,dy,$$

where C is the circle with center the origin and radius 4.