# Math 301-161 Quiz 2 (A)

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**Q:1** Use Stokes' theorem to evaluate the integral $\oint_C \vec{F} \cdot d\vec{r}$ where $\vec{F} = y^3\hat{i} - x^3\hat{j} + z^3\hat{k}$ and $C$ is the trace of the cylinder $x^2 + y^2 = 1$ in the plane $x + y + z = 1$.

**Q.2:** Use Green's theorem to evaluate $\oint_C \vec{F} \cdot d\vec{r}$ where $\vec{F} = (2e^x - y^2)\hat{i} + (3x^2 - 4\sin y)\hat{j}$ and $C$ is the boundary of the region determined by $y = x^2$ and $y = 4$.