Upload the e-record for:

Experiment #9: Vector Fields and Their Integration

Keep in mind the following points:

- Use different (unique) examples to make your e-record worthy of good grades.
- Do not upload pictures of the monitor screen containing the output instead save the figure in MatLab in an appropriate format and include it in the doc file.
- **The final submission must be in pdf format only.**
- Include the solution of the following problem(s) at the end of the e-record.

Exercise Problem:

1. Find the area of the astroid $x^{2/3} + y^{2/3} = a^{2/3}$ using MatLab.
2. Find the work done by the field $\boldsymbol{F} = \left(-16y + sin(x^2)\right)\boldsymbol{i} + (4e^y + 3x^2)\boldsymbol{j}$ acting along the closed curve C made of straight line connecting $(0,0)$ to $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$, arc of unit circle $x^2 + y^2 = 1$ from $\left(\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$ to $\left(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$, and straight line from $\left(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$ to $(0,0)$.