1. (2 points) Sketch the vector field $\mathbf{F}(x,y) = -xi$

2. (4 points) Let $E$ be the trapezoid with vertices (8,0),(12,0),(0,8) and (0,12). Using the change of variables $u = x - y$, $v = x + y$ change $\int E (x^2 - y^2) dA$ into an integral that is easier to evaluate (Do Not Evaluate) (Simplify)
3. (4 points) Let $E$ be the region bounded by $16x^2 + \frac{y^2}{9} = 2$

Find an appropriate change of variables and change $\iint_E e^{(16x^2 + \frac{y^2}{9})} \, dA$ into an integral that is easier to evaluate
(Do Not Evaluate)
(Simplify)