A. Let R be the parallelogram enclosed by lines $x - 2y = 0$, $x - 2y = 4$, $3x - y = 1$, $3x - y = 8$. Compute $\iint_R \frac{x - 2y}{3x - y}\, dA$.

B. Compute the area of the region where $1 \leq xy^2 \leq 2$ and $1 \leq x^2y^3 \leq 2$. Hint: write x and y as functions of u and v such that the region is a rectangle in (u, v)-coordinates.

C. $R = \{(x, y)|1 \leq x^2 + y^2 \leq e^2\}$. Evaluate the integral $\iint_R \frac{1}{\sqrt{x^2 + y^2}}\, dA$ using the change of variables $x = e^u \cos v$, $y = e^u \sin v$. You can check your answer by evaluating the integral using polar coordinates.

D. Find the area enclosed by the curve $x^2 + xy + y^2 = 1$. Hint: try the substitution $x = u + v\sqrt{3}$, $y = u - v\sqrt{3}$.

E. $R = \{(x, y)|9x^2 + 4y^2 \leq 1\}$. Calculate $\iint_R (9x^2 + 4y^2)^{5/2}\, dA$.

F. Compute the integral $\int_1^2 \int_{x/2}^{x} \frac{x}{y^2} \sin\left(\pi \frac{x}{y}\right) dy\, dx$ using the change of coordinates $x = u$, $y = u/v$.