1. Compute the following iterated integrals:

(a) \[ \int_0^1 \int_1^2 (x^2 y - y^2) \, dy \, dx \]

(b) \[ \int_0^\pi \int_0^{\pi/2} \cos(2x + 3y) \, dx \, dy \]

(c) \[ \int_0^1 \int_y^{2-y} (y^2 - x) \, dx \, dy \]

2. Evaluate the double integral \( \iint_D y \cos(x) \, dA \) where \( D \) is the region bounded by \( x = 0, \ x = y^2 \) and \( y = 1 \).

3. Use double integration to find the volume of the solid in the first octant bounded on the top by the paraboloid \( z = 16 + x^2 + y^2 \), bounded on the sides by the planes \( x = 0 \) and \( y = 0 \) and \( x + 2y = 4 \), and bounded on the bottom by the plane \( z = 0 \).