

Show all work. 5 points each.

1) Set up the integrals(i.e., the integrals for m, M_x, M_y) for finding the center of mass for the lamina that occupies the region D , where D is bounded by $y = e^x$, $y = 0$, $x = 0$ and $x = 1$ and has $p(x, y) = xy$ as a density function.

2) Find the surface area of the part of the plane $z = 2 + 3x + 4y$ that lies above the rectangle $[0, 5] \times [1, 4]$.