

Show all work. 5 points each.

1. Verify  $f(x, y) = \begin{cases} x(1+y)/2 & \text{if } 0 \leq x \leq 1, 0 \leq y \leq 2 \\ 0 & \text{otherwise} \end{cases}$  is a joint density function.

- 2) Set up the integral to find the volume below the cone  $z = 4 - \sqrt{x^2 + y^2}$  and above the  $xy$ -plane.

