

Show all work. 5 points each.

1) Suppose  $X$  and  $Y$  are random variables with joint density function

$$f(x, y) = \begin{cases} .1e^{-(.05x+.02y)} & x \geq 0, y \geq 0 \\ 0 & \text{else} \end{cases}$$

Set up the integral to find  $P(X \leq 2, Y \leq 4)$

2) Find the surface area of the part of the plane  $3x + 2y + z = 6$  that lies in the first octant.