

Math 477 “QUIZ” for Lecture 16

NAME: (print!) \_\_\_\_\_

E-MAIL ADDRESS: (print!) \_\_\_\_\_

1. In a certain (not that wealthy) town, the probability that a household has  $i$  cars and  $j$  bed-rooms is

$$p(i, j) = \begin{cases} \frac{i+j}{16} & \text{if } 0 \leq i \leq 1 \text{ and } 0 \leq j \leq 3; \\ 0 & \text{otherwise.} \end{cases},$$

If it is known that a household has 2 bed-rooms, what is the probability that it has a car?

2. The joint density function of  $X$  and  $Y$  is given by

$$f(x, y) = \begin{cases} \frac{2(x+2y)}{3} & , \text{ if } 0 < x < 1, 0 < y < 1; \\ 0 & , \text{ otherwise,} \end{cases}$$

(i) Compute the conditional density of  $X$  given that  $Y = y$ . (ii) If you know that  $Y = 0.5$  what is the probability that  $0 \leq X \leq 0.5$ .