

Math 477 “QUIZ” for Lecture 20

NAME: (print!) _____

E-MAIL ADDRESS: (print!) _____

1. Suppose that the joint density of X and Y is given by

$$f(x, y) = \begin{cases} \frac{x+y}{15} & , \text{ if } 0 < x < 2, 0 < y < 3; \\ 0 & , \text{ otherwise.} \end{cases} .$$

Find

(a) $E[X | Y = y]$

(b) $E[Y | X = x]$

2. A miner is trapped in a mine containing 2 doors.

- The first door leads to a tunnel that will take him to safety after 2 hours of travel.
- The second door leads to a tunnel that will take him back to the mine in 4 hours of travel.

If the probabilities of him choosing the first door is $\frac{1}{3}$, and of him choosing the second door is $\frac{2}{3}$, what is the expected length of time until he reaches safety?