Example (continued) X, 4 have joint lensity fx, 4 (x, y) = 40e -3x-5y for 0< xey = 0 otherwise

Need 
$$f_{Y|X}(y|x) = \frac{f_{X,Y}(x,y)}{f_{X}(x)} = \frac{40e^{-3x-5y}}{8e^{-8x}}$$
 for  $0 < x < y$ 

$$\int_{X}^{\infty} 40e^{-3x-5y} dy = 8e^{-8x}$$

$$E(Y|X=x) = \int_{x}^{\infty} (y)(5e^{5x-5y})dy = \frac{1}{5} + x$$

E.g. if we use 
$$x = 2$$
  
 $E(Y|X=2) = \int_{2}^{\infty} (y)(5e^{S(2)-5y}) dy = \frac{1}{5} + 2 = 2.2$