Quin Darcy
Dr. Catin
STAT 215A
5/5/22

Quiz #3

1.

(a) $P_Y(y) = \sum_{x=1}^{4} P_{X,Y}(x,y) = \frac{c}{y!} \sum_{x=1}^{4} x^4 = \frac{c}{y!}(1+2^y+3^y+4^y)$.

(b) $P_{X|Y}(x|1) = \frac{P_{X,Y}(x,1)}{P_Y(1)} = \frac{cx}{10c} = \frac{1}{10}x$.

(c) $P(X>2 \mid Y=1) = \sum_{x=3}^{4} P_{X|Y}(x|1)$

$= \frac{1}{10}(3+4) = 0.7$.

(d) $E[X \mid Y=1] = \sum_{x=1}^{4} x P_{X|Y}(x|1)$

$= \frac{1}{10} + \frac{4}{10} + \frac{9}{10} + \frac{16}{10}$

$= 3$.