Question 1:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x y | 1 | 2 | 3 | 4 | totals |
| 1 | 33 | 26 | 10 | 20 | 89 |
| 2 | 21 | 10 | 13 | 12 | 56 |
| 3 | 16 | 18 | 16 | 20 | 70 |
| totals | 70 | 54 | 39 | 52 | 215 |

(a)

f(x,y) joint relative frequency table

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x y | 1 | 2 | 3 | 4 | totals |
| 1 | 33/215=0.153 | 26/215=0.121 | 10/215=0.047 | 20/215=0.093 | 89/215=0.414 |
| 2 | 21/215=0.098 | 10/215=0.047 | 13/215=0.060 | 12/215=0.056 | 56/215=0.261 |
| 3 | 16/215=0.074 | 18/215=0.084 | 16/215=0.074 | 20/215=0.093 | 70/215=0.325 |
| totals | 70/215=0.325 | 54/215=0.252 | 39/215=0.181 | 52/215=0.242 | 215/215=1 |

(b)

fy|x(**·**|x) condition relative frequency for each possible value of x

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x y | 1 | 2 | 3 | 4 | totals |
| 1 | 33/89=0.371 | 26/89=0.292 | 10/89=0.112 | 20/89=0.225 | 89/89=1 |
| 2 | 21/56=0.375 | 10/56=0.179 | 13/56=0.232 | 12/56=0.214 | 56/56=1 |
| 3 | 16/70=0.229 | 18/70=0.257 | 16/70=0.229 | 20/70=0.285 | 70/70=1 |
| totals | 70/215=0.326 | 54/215=0.251 | 39/215=0.181 | 52/215=0.242 | 215/215 |

(c)

<http://www.statlect.com/inddst1.htm>

<http://cims.nyu.edu/~kiryl/Probability/Section_6.1--6.2.pdf>

<http://www.maths.qmul.ac.uk/~lr/MTH5118/Notes7.pdf>

