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MATH255 – Autumn 2023 Computer Lab – Week 10

Question 1

(a) We can complete the given two-way tables of probabilities describing Event A, B
and C by calculating sums and differences for the remaining values.

	B	$\bar{B}$	
A	0.1	0.3	0.4
$\bar{A}$	0.4	0.2	0.6
	0.5	0.5	1.0

	C	$\bar{C}$	
B	0.15	0.35	0.5
$\bar{B}$	0.45	0.05	0.5
	0.6	0.4	1.0

	C	$\bar{C}$	
A	0.15	0.25	0.4
$\bar{A}$	0.45	0.15	0.6
	0.6	0.4	1.0

(b) Snapshot of the execution

```
> install.packages("VennDiagram")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the
appropriate version of Rtools before proceeding:

https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/Huy Minh Dinh/AppData/Local/R/win-library/4.3'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.3/VennDiagram_1.7.3.zip'
Content type 'application/zip' length 251028 bytes (245 KB)
downloaded 245 KB

package 'VennDiagram' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\Huy Minh Dinh\AppData\Local\Temp\Rtmpa6SJhI\downloaded_packages
> library("VennDiagram")
Loading required package: grid
Loading required package: futile.logger
> grid.newpage()
> draw.triple.venn(area1=0.4, area2=0.5, area3=0.6, n12=0.1, n23=0.15, n13=0.15, n123=0.05, category=c
("A","B","C"), fill=c("Orange", "Green", "Purple"))
(polygon[GRID.polygon.1], polygon[GRID.polygon.2], polygon[GRID.polygon.3], polygon[GRID.polygon.4], polygon[GRI
D.polygon.5], polygon[GRID.polygon.6], text[GRID.text.7], text[GRID.text.8], text[GRID.text.9], text[GRID.text.1
0], text[GRID.text.11], text[GRID.text.12], text[GRID.text.13], text[GRID.text.14], text[GRID.text.15], text[GRI
D.text.16])
> |
```

Snapshot of the generated Venn diagram