

Rworksheet_Garcia#3a

```
#Part 1

#a.
LETTERS[1:11]

## [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K"

#b
LETTERS[seq(1,25,by=2)]

## [1] "A" "C" "E" "G" "I" "K" "M" "O" "Q" "S" "U" "W" "Y"

#c.
LETTERS[c(1,5,9,15,21)]

## [1] "A" "E" "I" "O" "U"

#d.
last5 <- LETTERS[22:26]

#e.
between <- LETTERS[15:24]

#Part 2

#a.
city <- c("Tugue-garao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")

#b.
temp <- c(42,39,34,34,30,27)

#c.
citytemp <- data.frame(city,temp)

#d.
names(citytemp)[1] <- "City"
names(citytemp)[2] <- "Temperature"
citytemp

##          City Temperature
## 1 Tugue-garao City        42
## 2 Manila                  39
## 3 Iloilo City              34
## 4 Tacloban                 34
## 5 Samal Island              30
## 6 Davao City                27

#e.
str(citytemp)

## 'data.frame':   6 obs. of  2 variables:
##   $ City      : chr  "Tugue-garao City" "Manila" "Iloilo City" "Tacloban" ...
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## $ Temperature: num 42 39 34 34 30 27
#the data frame containing six cities with their corresponding temperature

#f.
#the content of row 3 and 4 is iloilo and tacloban,they have the same temperature

#g.
print(citytemp[1,])

##           City Temperature
## 1 Tugue-garaao City          42
print(citytemp[6,])

##           City Temperature
## 6 Davao City          27
#1a.
matrix(c(5,6,7,4,3,2,1,2,3,7,8,9),nrow = 2)

##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]     5     7     3     1     3     8
## [2,]     6     4     2     2     7     9
matrix(data = c(3,4,5,6,7,8),3,2)

##      [,1] [,2]
## [1,]     3     6
## [2,]     4     7
## [3,]     5     8
diag(1,nrow = 6,ncol = 5)

##      [,1] [,2] [,3] [,4] [,5]
## [1,]     1     0     0     0     0
## [2,]     0     1     0     0     0
## [3,]     0     0     1     0     0
## [4,]     0     0     0     1     0
## [5,]     0     0     0     0     1
## [6,]     0     0     0     0     0
diag(6)

##      [,1] [,2] [,3] [,4] [,5] [,6]
## [1,]     1     0     0     0     0     0
## [2,]     0     1     0     0     0     0
## [3,]     0     0     1     0     0     0
## [4,]     0     0     0     1     0     0
## [5,]     0     0     0     0     1     0
## [6,]     0     0     0     0     0     1
#2a.
my_matrix <- matrix(c(1:8, 11:14),nrow =3,ncol = 4)

#2b.
my_matrix * 2

##      [,1] [,2] [,3] [,4]

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## [1,]    2     8    14    24
## [2,]    4    10    16    26
## [3,]    6    12    22    28

#2c.
my_matrix[2,]

## [1] 2 5 8 13

#2d.
my_matrix[1:2, 3:4]

##      [,1] [,2]
## [1,]    7   12
## [2,]    8   13

#2e.
my_matrix[3, 2:3]

## [1] 6 11

#2f.
my_matrix[, 4]

## [1] 12 13 14

#2g.
dimnames(my_matrix) <- list(c("isa","dalawa","tatlo"))
#Rows names (3 rows)c ("uno", "dos", "tres", "quattro") # Columns names (4 columns)

#2h.
dim(my_matrix) <- c(6,2)
my_matrix

##      [,1] [,2]
## [1,]    1    7
## [2,]    2    8
## [3,]    3   11
## [4,]    4   12
## [5,]    5   13
## [6,]    6   14

#array

#3a.
# Original values
values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)

# Repeat each value twice
rep_values <- rep(values, each = 2)

# Create a 3D array with 2 rows, 4 columns, and 3 dimensions
array_dta <- array(rep_values, dim = c(2, 4, 3))
array_dta

## , , 1
##      [,1] [,2] [,3] [,4]

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## [1,]    1    2    3    6
## [2,]    1    2    3    6
##
## , , 2
##
##      [,1] [,2] [,3] [,4]
## [1,]    7    8    9    0
## [2,]    7    8    9    0
##
## , , 3
##
##      [,1] [,2] [,3] [,4]
## [1,]    3    4    5    1
## [2,]    3    4    5    1

#3b.
dim(array_dta)

## [1] 2 4 3

#3c.
# Adding names
dimnames(array_dta) <- list(
  rows = c("a", "b"),    # lowercase row names
  columns = c("A", "B", "C", "D"),    # uppercase column names
  dimension = c("1st-Dimensional Array",
                "2nd-Dimensional Array",
                "3rd-Dimensional Array")  # layer names
)

array_dta

## , , dimension = 1st-Dimensional Array
##
##      columns
## rows A B C D
##   a  1 2 3 6
##   b  1 2 3 6
##
## , , dimension = 2nd-Dimensional Array
##
##      columns
## rows A B C D
##   a  7 8 9 0
##   b  7 8 9 0
##
## , , dimension = 3rd-Dimensional Array
##
##      columns
## rows A B C D
##   a  3 4 5 1
##   b  3 4 5 1

```