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title: “RWorksheet_Deluna#3A” author: “Nicole De Luna” date: “2023-10-19” output: pdf_document

```
LETTERS
```

```
##  [1] "A" "B" "C" "D" "E" "F" "G" "H" "I" "J" "K" "L" "M" "N" "O" "P" "Q" "R" "S"
## [20] "T" "U" "V" "W" "X" "Y" "Z"
```

```
# 1
# LETTERS vector
# a.
  first11 <- LETTERS[c(1:11)]
  first11
```

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

```
# b.
  lenLet <- length(LETTERS)
  oddNum <- LETTERS[seq(lenLet) %% 2 == 1]
  oddNum
```

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

```
# c
  vowels <- LETTERS[c(1,5,9,15,21)]
  vowels
```

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

```
#letters vector
# d
  letters
```

```
##  [1] "a" "b" "c" "d" "e" "f" "g" "h" "i" "j" "k" "l" "m" "n" "o" "p" "q" "r" "s"
## [20] "t" "u" "v" "w" "x" "y" "z"
```

```
  last5 <- letters[c(22:26)]
  last5
```

```
## [1] "v" "w" "x" "y" "z"
```

```
# e
  fifto24 <- letters[c(15:24)]
  fifto24
```

```
##  [1] "o" "p" "q" "r" "s" "t" "u" "v" "w" "x"
```

```
# 2
# a

  city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")
  city
```

```
## [1] "Tuguegarao City" "Manila"          "Iloilo City"     "Tacloban"
## [5] "Samal Island"    "Davao City"
```

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

```
## [1] 42 39 34 34 30 27
```

```r
# c
  city_temp <- data.frame(city,temp)

  city_temp
```

```
##              city temp
## 1 Tuguegarao City   42
## 2          Manila   39
## 3     Iloilo City   34
## 4        Tacloban   34
## 5    Samal Island   30
## 6      Davao City   27
```

```r
# d
  names(city_temp) <- c("City", "Temperature")
  city_temp
```

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

```r
# e

  str(city_temp)
```

```
## 'data.frame':    6 obs. of  2 variables:
##  $ City       : chr  "Tuguegarao City" "Manila" "Iloilo City" "Tacloban" ...
##  $ Temperature: num  42 39 34 34 30 27
```

```r
# the code displayed the structure of the city_temp object
# it displayed the contents of the data frame
# it displayed the summary of the data frame

# f

  twoRows <- city_temp[3:4,]

# g

  highest <- city_temp[which.max(city_temp$Temperature),]
  highest
```

```
##              City Temperature
## 1 Tuguegarao City          42
```

```r
  lowest <- city_temp[which.min(city_temp$Temperature),]
  lowest
```

```
##         City Temperature
## 6 Davao City          27
```

```r
# USING MATRICES

# 2 a
```

```r
  matr <- matrix(c(1:8,11:14), nrow = 3, ncol = 4)
  matr
```

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

```r
# b

  mulMatr <- matr * 2
  mulMatr
```

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

```r
# c

 rowTwooo <- mulMatr[2,]
  rowTwooo
```

```
## [1]  4 10 16 26
```

```r
# d

  twoColsAndRows <- mulMatr[c(1,2),c(3,4)]
  twoColsAndRows
```

```
##      [,1] [,2]
## [1,]   14   24
## [2,]   16   26
```

```r
# e

  twoColsOneRow <- mulMatr[3,c(2,3)]
  twoColsOneRow
```

```
## [1] 12 22
```

```r
# f

  fourCol <- mulMatr[,4]
  fourCol
```

```
## [1] 24 26 28
```

```r
# g
  dimnames(mulMatr) <- list(c("hana", "dhul", "set"), c("isa", "duha", "tatlo", "apat"))

  mulMatr
```

```
##      isa duha tatlo apat
## hana   2    8    14   24
## dhul   4   10    16   26
## set    6   12    22   28
```

```r
# h
```

```
  matr
```

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

```
  dim(matr) <- c(6,2)
  matr
```

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

```
# ARRAYS

# 3 a


  values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
  rep_values <- rep(values, each = 2)

  arr <- array(rep_values, dim = c(2,4,3))
  arr
```

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

```
# 3 b
# three dimensions

# 3 c
  dimnames(arr) <- list(
  letters[1:2], # row names
  LETTERS[1:4], # col names
  c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array") # dim names
)
```

```
  arr
```

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