RWorksheet_Castillano#3

Castillano, Rashir John E.

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```
#1.
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"
```

```
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"
```

```
#LETTERS
#a
first_eleven <-head (LETTERS, 11)
first_eleven
```

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

```
#b
alphabet <- LETTERS
odd_letters <- alphabet[seq(1, length(alphabet),2)]
odd_letters
```

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

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

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

```
#letters
#d
last_five <-tail (letters, 5)
last_five
```

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

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

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

```r
#2a.
#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"
```

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

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

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

```
##              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(weather_data) <- c("City", "Temperature")
weather_data
```

```
##              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(weather_data)
```

```
## '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 dataframe weather_data has 6 observations (rows) and 2 variables (columns).
##The City column is of type character (chr).
##The Temperature column is of type numeric (num).
```

```r
#f
weather_data[3, ]
```

```
##          City Temperature
## 3 Iloilo City          34
```

```r
weather_data[4, ]
```

```
##       City Temperature
## 4 Tacloban          34
```

```r
#g
weather_data[which.max(weather_data$Temperature), ]
```

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

```r
weather_data[which.min(weather_data$Temperature), ]
```

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

```r
#2b.
#a
mat <- matrix(c(1:8, 11:14), nrow = 3, ncol = 4)
mat
```

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

```r
#b
mat * 2
```

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

```r
#c
mat[2, ]
```

```
## [1]  2  5  8 13
```

```r
#d
mat[1:2, 3:4]
```

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

```r
#e
mat[3, 2:3]
```

```
## [1]  6 11
```

```r
#f
mat [ , 4]
```

```
## [1] 12 13 14
```

```r
#g
mat <- matrix(1:12, nrow = 3, ncol = 4)
rownames(mat) <- c("isa", "dalawa", "tatlo")
colnames(mat) <- c("uno", "dos", "tres", "quatro")
print(mat)
```

```
##        uno dos tres quatro
## isa      1   4    7     10
## dalawa   2   5    8     11
## tatlo    3   6    9     12
```

```r
#h
dim(mat) <- c(6, 2)
mat
```

```
##      [,1] [,2]
## [1,]    1    7
## [2,]    2    8
## [3,]    3    9
## [4,]    4   10
## [5,]    5   11
## [6,]    6   12
```

```r
#3
#a
values <- c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1)
arr <- array(rep(values, 2), dim = c(2, 4, 3))
arr
```

```
## , , 1
##
##      [,1] [,2] [,3] [,4]
## [1,]    1    3    7    9
```

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

```r
#b
length(dim(arr))
```

```
## [1] 3
```

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

arr
```

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