RWorksheet_sayson#3a

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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"
```

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

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

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

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

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

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

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

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

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

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

```r
#2a.
#a
city <- c("Tuguegarao City", "Manila", "Iloilo City", "Tacloban City", "Samal Island", "Davao City")
city
```

```
## [1] "Tuguegarao City" "Manila"          "Iloilo City"     "Tacloban City"
## [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.frame(city, temp)
weather
```

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

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

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

```r
#e
str(weather)
```

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

```r
#The data frame displays the average temperature of the corresponding city. It says that there are 6 ob
```

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

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

```r
weather [4, ]
```

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

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

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

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

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

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

```
##      [,1] [,2]
## [1,]    4    7
## [2,]    5    8
```

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

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

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

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

```r
#g
mat <- matrix(data = c(1:12),3,4)
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
mat <- matrix(data = c(1:8, 11:14),3,4)
dim(mat) <- c(6, 2)
print(mat)
```

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

```r
#3.
array_data <- array(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1))
array_data
```

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

```r
#a
array_data <- array(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1))
repeated <- rep(array_data, each = 2)
repeated_3d <- array(repeated)
repeated_final <- array(repeated, dim = c(2, 3, 4))
print (repeated_final)
```

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

```r
#b
print (repeated_final)
```

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

```
##
##      [,1] [,2] [,3]
## [1,]    4    5    1
## [2,]    4    5    1
```

```
# The array has 3 dimensions as seen in "dim" in repeated_final <- array(repeated, dim = c(2, 3, 4)).
```

```
#c
rownames <- letters[1:2]
colnames <- LETTERS[1:3]
dimnames_3d <- c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array", "4th-Dimens
dimnames(repeated_final) <- list(rownames, colnames, dimnames_3d)
print(repeated_final)
```

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