RWorksheet_Parita#3a

###1 Vectors

```
# 1.
# a.
FIRST11 <- LETTERS[1:11]
```

```
# b.
ODDLETTERS <- LETTERS[seq(1, 25, by = 2)]
```

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

```
# d.
last5 <- letters[22:26]
```

```
# e.
midletters <- letters[16:23]
```

###2

```
# 2.
# a.
city <-c("Tuguegarao City","Manila City","Iloilo City","Tacloban City","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 Tuguegarao City          42
## 2     Manila City          39
## 3     Iloilo City          34
## 4   Tacloban City          34
## 5    Samal Island          30
## 6      Davao City          27
```

```
# e.
str(citytemp)
```

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

```
# The output displays the total numbers of objects and variables
```

```
# f.
# The content of rows 3 and 4 are Iloilo and Tacloban City both with 34 in temperature
```

```
# g.
print(citytemp[1,])
```

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

```
print(citytemp[6,])
```

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

###1 Matrices

```
# 1.
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
```

###2

```
# a.
oneeight <- matrix(c(1:8, 11:14),3,4)
oneeight
```

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

```r
# b.
oneeight2 <- oneeight * 2
oneeight2
```

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

```r
# c.
oneeight[2,]
```

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

```r
oneeight2[2,]
```

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

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

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

```r
# e.
oneeight[3, 2:3]
```

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

```r
# f..
oneeight[,4]
```

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

```r
# g.
dimnames(oneeight2) <- list(c("isa","dalawa","tatlo"), c("uno","dos","tres","quatro"))
oneeight2
```

```
##        uno dos tres quatro
## isa      2   8   14     24
## dalawa   4  10   16     26
## tatlo    6  12   22     28
```

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

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

###3 Array

```r
array_dta <- array(c(1:24), c(3,4,2))
array_dta
```

```
## , , 1
##
##      [,1] [,2] [,3] [,4]
## [1,]    1    4    7   10
## [2,]    2    5    8   11
## [3,]    3    6    9   12
##
## , , 2
##
##      [,1] [,2] [,3] [,4]
## [1,]   13   16   19   22
## [2,]   14   17   20   23
## [3,]   15   18   21   24
```

```
dim(array_dta)
```

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

```
length(array_dta)
```

```
## [1] 24
```

```
vectorA <- c(1:24)

an_Array <- array(vectorA, dim = c(3,4,2))
an_Array
```

```
## , , 1
##
##      [,1] [,2] [,3] [,4]
## [1,]    1    4    7   10
## [2,]    2    5    8   11
## [3,]    3    6    9   12
##
## , , 2
##
##      [,1] [,2] [,3] [,4]
## [1,]   13   16   19   22
## [2,]   14   17   20   23
## [3,]   15   18   21   24
```

```
# 3.
# a.
awch <- array(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1), dim = c(2, 4, 3))
```

```
# b.
dim(awch)
```

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

```
# c.
rownames(awch) <- c("a","b")
colnames(awch) <- c("A","B","C","D")

dimnames(awch)[3] <- list(c("1st-Dimension", "2nd-Dimension", "3rd-Dimension"))
awch
```

```
## , , 1st-Dimension
```

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