

RWorksheet_cabia#3a.

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Using VECTORS

1.

a.

```
first_11_letters <- LETTERS[1:11]
first_11_letters
```

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

b.

```
odd_number_letters <- LETTERS[seq(1, 26, by=2)]
odd_number_letters
```

```
## [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"
```

d.

```
last5_lowercase <- letters[22:26]
last5_lowercase
```

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

e.

```
lowercase_15_to_24 <- letters[15:24]
lowercase_15_to_24
```

```
## [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
```

c.

```
df_citytemp <- data.frame(city, temp)
df_citytemp
```

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

d.

```
names(df_citytemp) <- c("City", "Temperature")
df_citytemp
```

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

e.

```
str(df_citytemp)
```

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

f.

```
df_citytemp[3:4,]  
  
##           City Temperature  
## 3 Iloilo City           34  
## 4  Tacloban            34
```

g.

```
highest_temp_city <- df_citytemp$City[which.max(df_citytemp$Temperature)]  
lowest_temp_city <- df_citytemp$City[which.min(df_citytemp$Temperature)]  
  
highest_temp_city  
  
## [1] "Tuguegarao City"  
lowest_temp_city  
  
## [1] "Davao City"
```

2. using MATRICES

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
```

b.

```
mult <- mat * 2  
mult  
  
##      [,1] [,2] [,3] [,4]  
## [1,]    2    8   14   24  
## [2,]    4   10   16   26  
## [3,]    6   12   22   28
```

c.

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

d.

```
mat[1:2, 3:4]

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

e.

```
mat[3, 2:3]

## [1]  6 11
```

f.

```
mat[, 4]

## [1] 12 13 14
```

g.

```
rownames(mat) <- c("isa", "dalawa", "tatlo")
colnames(mat) <- c("uno", "dos", "tres", "quatro")
mat

##      uno dos tres quatro
## isa      1  4   7    12
## dalawa   2  5   8    13
## tatlo    3  6  11    14
```

h.

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

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

3. using ARRAYS

a.

```
arr1 <- rep(c(1, 2, 3, 6, 7, 8, 9, 0, 3, 4, 5, 1), 2)
numarray <- array(arr1, dim = c(2, 4, 3))
numarray
```

```
## , , 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
```

```
# b.
dim(numarray)
```

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

```
# c.
rownames(numarray) <- c("a", "b")
colnames(numarray) <- c("A", "B", "C", "D")
dimnames(numarray)[[3]] <- c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array")
```

```
numarray
```

```
## , , 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
```