

# RWorksheet\_Arlante#3a

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```
#Using Vectors
```

```
#1.LETTERS
```

```
#a. You need to produce a vector that contains the first 11 letters.
```

```
first11 <- LETTERS[1:11]  
(first11)
```

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

```
#b. Produce a vector that contains the odd numbered letters.
```

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

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

```
#c. Produce a vector that contains the vowels
```

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

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

```
{r}
```

```
#d. Produce a vector that contains the last 5 lowercase letters.
```

```
last5lower <- letters[22:26] (last5lower)
```

```
#e. Produce a vector that contains letters between 15 to 24 letters in lowercase.
```

```
lower15_24 <- letters[15:24]  
(lower15_24)
```

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

```
#2. Vector of Temperature.
```

```
#a. Character of cities
```

```
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. Vectors of Temperature
```

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

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

```
#c. Data frame to combine the city and the temp
```

```
citytemp <- data.frame(City = city, Tempreature = temp)
(citytemp)
```

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

```
#d. rename the columns using the names() function
```

```
names(citytemp) <- c("City", "Tempreature")
(citytemp)
```

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

```
{r}
```

```
#e. Print the structure by using str() function.
```

```
str(citytemp) #outputs the structure of citytemp
```

```
#f. The content of row 3 and row 4.
```

```
(citytemp[3:4, ])
```

```
##           City Tempreature
## 3 Iloilo City         34
## 4   Tacloban         34
```

```
#g. Display the city with highest temperature and the city with the lowest temperature.
```

```
(citytemp[which.max(citytemp$Tempreature), ])
```

```
##           City Tempreature
## 1 Tuguegarao City         42
```

```
(citytemp[which.min(citytemp$Tempreature), ])
```

```
##           City Tempreature
```

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

```
#Using Matrices
```

```
#2. Create a matrix of one to eight and eleven to fourteen with four columns and three rows.  
#2a.
```

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

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

```
#2b
```

```
matrix_multiplied <- matrix_data * 2  
matrix_multiplied
```

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

```
#2c
```

```
row_2 <- matrix_data[2, ]  
row_2
```

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

```
#2d
```

```
subset_matrix <- matrix_data[1:2, 3:4]  
subset_matrix
```

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

```
#2e
```

```
row_3_subset <- matrix_data[3, 2:3]  
row_3_subset
```

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

```
#2f
```

```
column_4 <- matrix_data[, 4]  
column_4
```

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

```
#2g
```

```
dimnames(matrix_multiplied) <- list(c("isa", "dalawa", "tatlo"), c("uno", "dos", "tres", "quatro"))  
matrix_multiplied
```

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

```
#2h
```

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

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

*#Using Arrays*

*#3a*

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

```
my_array <- array(values, dim = c(2, 4, 3))
```

```
my_array
```

```
## , , 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
```

*#3b*

```
dim(my_array)
```

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

*#3c*

```
row_names <- c("a", "b")
```

```
column_names <- c("A", "B", "C", "D")
```

```
dimension_names <- c("1st-Dimensional Array", "2nd-Dimensional Array", "3rd-Dimensional Array")
```

```
dimnames(my_array) <- list(row_names, column_names, dimension_names)
```

```
my_array
```

```
## , , 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
```