

RWorksheet_SADSAD#2b

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#Using Vectors

#1.

```
#a
elevenLetters <- LETTERS[1:11]
elevenLetters
```

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

```
#b
oddNumLetters<- LETTERS [1:26 %% 2 == 1]
oddNumLetters
```

```
[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
smolLetters <- tail(letters,5)
smolLetters
```

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

```
#e.
peepLetter <- letters[15:24]
peepLetter
```

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

#2.

```
#a.
city <- c("Tugue-garao City", "Manila", "Iloilo City", "Tacloban", "Samal Island", "Davao City")
city
```

```
[1] "Tugue-garao 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
```

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

```
#c.
```

```
cityTemp <- data.frame(city,temp)
cityTemp #The cityTemp data frame has two columns: "city" and "temp". The "city" column contains the ci
```

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

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

```
#d.
```

```
colnames(cityTemp) <- c("City", "Temperature")
col_names <- colnames(cityTemp)
col_names#The cityTemp has two column names which contains "city" and "temperature", and
```

```
[1] "City"          "Temperature"
```

```
#[1] "City"          "Temperature"
```

```
#e.
```

```
str(cityTemp) #str(cityTemp) output tells that cityTemp is a data frame with two columns:"City" and "Te
```

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

```
#f
```

```
row_3 <- cityTemp[3,]
row_3
```

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

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

```
row_4 <- cityTemp[4,]
row_4
```

```
           City Temperature
4 Tacloban           34
```

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

```
#g
max(cityTemp$City) #[1] "Tugue-garao City"
```

```
[1] "Tugue-garao City"
```

```
min(cityTemp$City) #[1] "Davao City"
```

```
[1] "Davao City"
```

```
#Using Matrices
```

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

```
#a
orgMatrix <- matrix(data = c(1:8, 11:14),nrow =3 , ncol = 4)
orgMatrix #It combines two sequences of numbers: 1 to 8 and 11 to 14, arranging them into the specified
```

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

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

```
#b
orgMatrix_new <- orgMatrix *2
orgMatrix_new # multiplies every element in the orgMatrix by 2 and stores the result in a new matrix ca
```

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

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

```
#c
row_2 <- orgMatrix_new[2,]
row_2
```

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

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

```
#d
select_val <-orgMatrix_new[c(1,2), c(3,4)]
select_val
```

```
      [,1] [,2]
[1,]   14   24
[2,]   16   26
```

```
#      [,1] [,2]
# [1,]   14   24
# [2,]   16   26
```

```
#e
select_val2 <-orgMatrix_new[3, c(2,3)]
select_val2
```

```
[1] 12 22
```

```
#[1] 12 22
```

```
#f
col<- orgMatrix_new[,4]
col
```

```
[1] 24 26 28
```

```
#[1] 24 26 28
```

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

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

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

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

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

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

#Using Arrays

#3

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

, , 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
```

, , 4

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

, , 5

	[,1]	[,2]	[,3]	[,4]
[1,]	3	5	1	3
[2,]	4	1	2	6

, , 6

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

```
#b Three dimensions (2,4,6)
dim(array_data)
```

```
[1] 2 4 6
```

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

```
, , 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
```

```
, , 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
```

```
#  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  
#  
# , , 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
```