Worksheet-3a

Mark Wryzel Macarobo BSIT-2A

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1)

a.

```
LETTERS[1:11]
```

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

b.

```
LETTERS[1:26 %% 2==1]
```

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

c.

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

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

d.

```
letters[22:26]
```

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

e.

```
letters[15:24]
```

```
##  [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.

```
names(temp) <- city
temp
```

```
## Tuguegarao City          Manila     Iloilo City        Tacloban    Samal Island
##              42              39              34              34              30
##      Davao City
##              27
```

d.

```
temp[5:6]
```

```
## Samal Island   Davao City
##           30           27
```

Matrix

2)

a.

```
num1 <- matrix(data = c(1:8,11:14),3,4)
num1
```

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

b.

```
num1 * 2
```

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

c.

```
num1[2,]
```

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

d.

```
num1[c(1,2), c(3,4)]
```

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

e.

```
num1[c(3),c(2,3)]
```

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

f.

```
num1[,4]
```

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

g.

```
dimnames(num1) <- list(c("isa","dalawa","tatlo"), c("uno","dos","tres","quatro"))
num1
```

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

h.

```
dim(num1) <- c(6,2)
num1
```

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

3)

a.

```
num2 <- c(1,2,3,6,7,8,9,0,3,4,5,1)
threedimensional <- array(rep(num2,2), dim = c(2,4,3))
threedimensional
```

```
## , , 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(threedimensional)
```

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

c.

```
dimnames(threedimensional) <- list(letters[1:2], LETTERS[1:4], c("1st-Dimensional Array",
                                                                 "2nd-Dimentional Array",
                                                                 "3rd-Dimensional Array"))
```