RWorksheet_Basa#1

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1. Vector: operator

a.

```
seq_seq <- -5:5
print (seq_seq)
```

```
##  [1] -5 -4 -3 -2 -1  0  1  2  3  4  5
```

b.

```
x <- 1:7
print(x)
```

```
## [1] 1 2 3 4 5 6 7
```

2. vector using seq()

```
seq(1, 3, by=0.2)
```

```
##  [1] 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0
```

```
print(seq)
```

```
## function (...)
## UseMethod("seq")
## <bytecode: 0x626efc7c11b0>
## <environment: namespace:base>
```

3. A factory has a census of its workers. There are 50 workers in total. The following list shows their ages: 34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27, 22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41, 51, 35, 24,33, 41, 53, 40, 18, 44, 38, 41, 48, 27, 39, 19, 30, 61, 54, 58, 26,

4.

1

a. Access 3rd element, what is the value?

```
mylist <- list(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41, 51, 35, 24,33, 41, 53, 40, 18, 44, 38, 4
print(mylist[3])
```

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

b. Access 2nd and 4th element, what are the values?

```
mylist <- list(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41, 51, 35, 24,33, 41, 53, 40, 18, 44, 38, 4
print(mylist[c(2, 4)])
```

```
## [[1]]
## [1] 28
##
## [[2]]
## [1] 36
```

c. Access all but the 4th and 12th element is not included. Write the R script and its output.

```
mylist <- list(34, 28, 22, 36, 27, 18, 52, 39, 42, 29, 35, 31, 27,
22, 37, 34, 19, 20, 57, 49, 50, 37, 46, 25, 17, 37, 43, 53, 41, 51, 35, 24,33, 41, 53, 40, 18, 44, 38, 4
print(mylist[-c(4, 12)])
```

```
## [[1]]
## [1] 34
##
## [[2]]
## [1] 28
##
## [[3]]
## [1] 22
##
## [[4]]
## [1] 27
##
## [[5]]
## [1] 18
##
## [[6]]
## [1] 52
##
## [[7]]
## [1] 39
##
## [[8]]
## [1] 42
##
## [[9]]
## [1] 29
##
## [[10]]
## [1] 35
##
## [[11]]
## [1] 27
##
## [[12]]
## [1] 22
##
## [[13]]
## [1] 37
##
## [[14]]
## [1] 34
##
## [[15]]
```

```
## [1] 19
##
## [[16]]
## [1] 20
##
## [[17]]
## [1] 57
##
## [[18]]
## [1] 49
##
## [[19]]
## [1] 50
##
## [[20]]
## [1] 37
##
## [[21]]
## [1] 46
##
## [[22]]
## [1] 25
##
## [[23]]
## [1] 17
##
## [[24]]
## [1] 37
##
## [[25]]
## [1] 43
##
## [[26]]
## [1] 53
##
## [[27]]
## [1] 41
##
## [[28]]
## [1] 51
##
## [[29]]
## [1] 35
##
## [[30]]
## [1] 24
##
## [[31]]
## [1] 33
##
## [[32]]
## [1] 41
##
## [[33]]
```

```
## [1] 53
##
## [[34]]
## [1] 40
##
## [[35]]
## [1] 18
##
## [[36]]
## [1] 44
##
## [[37]]
## [1] 38
##
## [[38]]
## [1] 41
##
## [[39]]
## [1] 48
##
## [[40]]
## [1] 27
##
## [[41]]
## [1] 39
##
## [[42]]
## [1] 19
##
## [[43]]
## [1] 30
##
## [[44]]
## [1] 61
##
## [[45]]
## [1] 54
##
## [[46]]
## [1] 58
##
## [[47]]
## [1] 26
##
## [[48]]
## [1] 18
```

4. *Create a vector x <- c(“first”=3, “second”=0, “third”=9). Then named the vector, names(x).

```
names <- c("first"=3, "second"=0, "third"=9)
print(names)
```

```
##  first second  third
##      3      0      9
```

a. Print the results. Then access x[c(“first”, “third”)]. Describe the output.

```
names <- c("first"=3, "second"=0, "third"=9)
names[c( 1, 3)]
```

```
## first third
##     3     9
```

b. Write the code and its output.

```
names <- c("first"=3, "second"=0, "third"=9)
names[c( 1, 3)]
```

```
## first third
##     3     9
```

```
names
```

```
##  first second  third
##      3      0      9
```

5. Create a sequence x from -3:2.

a. Modify 2nd element and change it to 0; x[2] <- 0 x

```
x <- -3:2
x[2] <- 0
x
```

```
## [1] -3  0 -1  0  1  2
```

Describe the output.

b. Write the code and its output.

```
x <- -3:2
x[2] <- 0
x
```

```
## [1] -3  0 -1  0  1  2
```

[1] -3 0 -1 0 1 2 6. *The following data shows the diesel fuel purchased by Mr. Cruz.

2

Month Jan Feb March Apr May June Price per liter (PhP) 52.50 57.25 60.00 65.00 74.25 54.00 Purchase–quantity(Liters) 25 30 40 50 10 45 a. Create a data frame for month, price per liter (php) and purchase-quantity (liter). Write the R scripts and its output.

```
months <- c("Jan", "Feb", "March", "Apr", "May", "Jun")
php <- c(52.50, 57.25, 60.00, 65.00, 74.25, 54.00)
liters <- c(25, 30, 40, 50, 10, 45)
df <- data.frame(months, php, liters)
df
```

```
##   months   php liters
## 1    Jan 52.50     25
## 2    Feb 57.25     30
## 3  March 60.00     40
## 4    Apr 65.00     50
## 5    May 74.25     10
## 6    Jun 54.00     45
```

b. What is the average fuel expenditure of Mr. Cruz from Jan to June? Note: Use 'weighted.mean(liter, purchase)'. Write the R scripts and its output.

```r
average <- weighted.mean(php, liters)
average
```

```
## [1] 59.2625
```

7. R has actually lots of built-in datasets. For example, the rivers data "gives the lengths (in miles) of 141 "major" rivers in North America, as compiled by the US Geological Survey".

a. Type "rivers" in your R console. Create a vector data with 7 elements, containing the number of elements (length) in rivers, their sum (sum), mean (mean), median(median), variance(var), standard deviation(sd), minimum (min) and maximum (max).

```r
data(rivers)

vector_data <- c(
  length = length(rivers),
  sum = sum(rivers),
  mean = mean(rivers),
  median = median(rivers),
  variance = var(rivers),
  sd = sd(rivers),
  min =min(rivers),
  max = max(rivers)
)

vector_data
```

```
##      length         sum        mean      median    variance          sd
##    141.0000  83357.0000    591.1844    425.0000 243908.4086    493.8708
##         min         max
##    135.0000   3710.0000
```

b. What are the results?

length(rivers): 141.0000 sum(rivers): 83357.0000 mean(rivers): 591.1844 median(rivers): 425.0000 var(rivers): 243908.4086 sd(rivers): 493.8708 min(rivers): 135.0000 max(rivers): 3710.0000