

R for Data Science

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Question 1

a. `x <- c(3,6,8)`

Print the value of x

```
x<-c(3, 6, 8)
```

```
print(x)
```

```
## [1] 3 6 8
```

b. Find the value of

i) $x/2$

ii) x^2

iii) `sqrt(x)`

iv) `x[2]`

```
x/2
```

```
## [1] 1.5 3.0 4.0
```

```
x^2
```

```
## [1] 9 36 64
```

```
sqrt(x)
```

```
## [1] 1.732051 2.449490 2.828427
```

```
x[2]
```

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

c. What will be the result of

i) `x[c(1,3)]` // Justify your response

ii) `x[-3]` // Justify your response

```
x[c(1,3)]
```

```
## [1] 3 8
```

Justification: This command allows us to print the 1st and 3rd element of the vector created (i.e: “x”).

```
x[-3]
```

```
## [1] 3 6
```

d. y <- c(2,5,1)

Print the value of y

```
y<-c(2, 5, 1)
```

```
y
```

```
## [1] 2 5 1
```

e. Find the value of

i) x-y

ii) x*y

```
x-y
```

```
## [1] 1 1 7
```

```
x*y
```

```
## [1] 6 30 8
```

f. What will be the result of the following command

i) x[y>1.5] // Justify your response

ii) y[x==6] // Justify your response

iii) 4:10

iv) seq(2,3,by=0.1)

v) rep(x,each=4)

```
x[y>1.5]
```

```
## [1] 3 6
```

```
y[x==6]
```

```
## [1] 5
```

```
4:10
```

```
## [1] 4 5 6 7 8 9 10
seq(2,3,by=0.1)
## [1] 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0
rep(x,each=4)
## [1] 3 3 3 3 6 6 6 6 8 8 8 8
```

Question 2:

a. Assume that we have registered the height and weight for four people: Heights in cm are 180, 165, 160, 193; weights in kg are 87, 58, 65, 100. Make two vectors, height and weight, with the data. The bodymass index (BMI) is defined as weight in kg / (height in m)²

Creating the inputs

```
weight<- c(87, 58, 65, 100)
height<- c(180, 165, 160, 193)
```

Converting cm to m

```
x = (height/100)^2
bmi = weight/x
print (bmi>25)

## [1] TRUE FALSE TRUE TRUE
```

b. Make a vector with the BMI values for the four people, and a vector with the natural logarithm to

the BMI values. Finally make a vector with the weights for those people who have a BMI larger than 25.

Printing the bmi above 25

```
bmi_cal<-subset(bmi, bmi>25)
print (bmi_cal)

## [1] 26.85185 25.39062 26.84636
```