```r
# 1
age <- c(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, 42, 53, 41, 51, 35, 24, 33, 41)

# a. How many data points? - 34
# b.
length(age)
```

```
## [1] 34
```

```r
# 2
reciprocal <- 1/age
reciprocal
```

```
##  [1] 0.02941176 0.03571429 0.04545455 0.02777778 0.03703704 0.05555556
##  [7] 0.01923077 0.02564103 0.02380952 0.03448276 0.02857143 0.03225806
## [13] 0.03703704 0.04545455 0.02702703 0.02941176 0.05263158 0.05000000
## [19] 0.01754386 0.02040816 0.02000000 0.02702703 0.02173913 0.04000000
## [25] 0.05882353 0.02702703 0.02380952 0.01886792 0.02439024 0.01960784
## [31] 0.02857143 0.04166667 0.03030303 0.02439024
```

```r
# 3
new_age <- c(age, 0, age)
new_age
```

```
##  [1] 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
## [26] 37 42 53 41 51 35 24 33 41  0 34 28 22 36 27 18 52 39 42 29 35 31 27 22 37
## [51] 34 19 20 57 49 50 37 46 25 17 37 42 53 41 51 35 24 33 41
```

```r
# What happen to the new_age? -
# The new_age vector contains 2 age vector values seperated by 0

# 4
sorted_age <- sort(age)
sorted_age
```

```
##  [1] 17 18 19 20 22 22 24 25 27 27 28 29 31 33 34 34 35 35 36 37 37 37 39 41 41
## [26] 42 42 46 49 50 51 52 53 57
```

```r
# 5
min_age <- min(age)
min_age
```

```
## [1] 17
```

```r
max_age <- max(age)
max_age
```

```
## [1] 57
```

```r
# 6
data <- c(2.4, 2.8, 2.1, 2.5, 2.4, 2.2, 2.5, 2.3, 2.5, 2.3, 2.4, 2.7)
# a. How many data points? - 12
# b.
length(data)
```

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

```r
# 7
doubled_data <- data * 2
doubled_data
```

```
##  [1] 4.8 5.6 4.2 5.0 4.8 4.4 5.0 4.6 5.0 4.6 4.8 5.4
```

```r
# What happen to the data? -
# The values in data is doubled

# 8
# 8.1
integers <- seq(1:100)
integers
```

```
##   [1]   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18
##  [19]  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36
##  [37]  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54
##  [55]  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72
##  [73]  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90
##  [91]  91  92  93  94  95  96  97  98  99 100
```

```r
# 8.2
numbers <- seq(20, 60)
numbers
```

```
##  [1] 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44
## [26] 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
```

```r
# 8.3
mean_numbers <- mean(numbers)
mean_numbers
```

```
## [1] 40
```

```r
# 8.4
sum_integers <- sum(integers[51:91])
sum_integers
```

```
## [1] 2911
```

```r
# 8.5
integers_2 <- seq(1:1000)
# a. How many data points from 8.1 to 8.4? - 143
# b.
length(integers) + length(numbers) + length(mean_numbers) + length(sum_integers)
```

```
## [1] 143
```

```r
# c.
data_point <- integers_2[1:10]
max_data_point <- max(data_point)
max_data_point
```

```
## [1] 10
```

```r
# 9
filtered_integers <- Filter(function(i) { all(i %% c(3,5,7) != 0) }, seq(100))
filtered_integers
```

```
##  [1]  1  2  4  8 11 13 16 17 19 22 23 26 29 31 32 34 37 38 41 43 44 46 47 52 53
```

```
## [26] 58 59 61 62 64 67 68 71 73 74 76 79 82 83 86 88 89 92 94 97
```

```
# 10
backwards_integers <- sort(integers, decreasing = TRUE)
backwards_integers
```

```
##   [1] 100  99  98  97  96  95  94  93  92  91  90  89  88  87  86  85  84  83
##  [19]  82  81  80  79  78  77  76  75  74  73  72  71  70  69  68  67  66  65
##  [37]  64  63  62  61  60  59  58  57  56  55  54  53  52  51  50  49  48  47
##  [55]  46  45  44  43  42  41  40  39  38  37  36  35  34  33  32  31  30  29
##  [73]  28  27  26  25  24  23  22  21  20  19  18  17  16  15  14  13  12  11
##  [91]  10   9   8   7   6   5   4   3   2   1
```

```
# 11
numbers_2 <- 1:24
multiples <- numbers_2[numbers_2 %% 3 == 0 | numbers_2 %% 5 == 0]
multiples
```

```
##  [1]  3  5  6  9 10 12 15 18 20 21 24
```

```
sum_multiples <- sum(multiples)
sum_multiples
```

```
## [1] 143
```

```
# a. How many data points from 10 to 11? - 111

# 12
# x <- {0 + x + 5 + }
# x
# Describe the output -
# There is no output because the syntax is incorrect

# 13
score <- c(72, 86, 92, 63, 88, 89, 91, 92, 75, 75, 77)
score1 <- score[2]
score1
```

```
## [1] 86
```

```
score2<- score[3]
score2
```

```
## [1] 92
```

```
# 14
a = c(1,2,NA,4,NA,6,7)
# a.
print(a,na.print="999")
```

```
## [1]   1   2 999   4 999   6   7
```

```
# b. Describe the output. -
# The values NA from the vector a got replaced by 999 in the output
```

15

```
name = readline(prompt="Input your name: ")
```

```
## Input your name:
```

```
age = readline(prompt="Input your age: ")
```

```
## Input your age:
```

```
print(paste("My name is",name, "and I am",age ,"years old."))
```

```
## [1] "My name is  and I am  years old."
```

```
print(R.version.string)
```

```
## [1] "R version 4.4.1 (2024-06-14)"
```