# Unit 4 - Week 3 - Conditional executions and loops, data management with sequences.

## Assignment 3

.

1) If  `x = 123` then which one of the following is the correct outcome of    **1 point**
    `y=if ( x==33 ) { x <- x^2 } else { x <- x^3 }`?

○  **1860867**

○  **15129**

○  **123**

○  None of these

**Accepted Answers:**
*1860867*

2) Which one of the following is the correct  syntax to compute  **y** for the following function?    **1 point**

$$y = \begin{cases} 2x^2 + |x - 6| & \text{if } x \le 0 \\ 3x^3 - \sqrt{x^5} & \text{if } x > 0 \end{cases}$$

○  `if ( x <= 0 ) { y <- 2 * x^2 + abs(x - 6) } else { y <- 3 * x^3 - sqrt(x^5 }`

○  `if ( x <= 0 ) ( y <- 2 * x^2 + abs(x - 6) ) else ( y <- 3 * x^3 - sqrt(x^5))`

○  `if ( x <= 0 ) ( y < 2 * x^2 + abs(x - 6)  ) else (x > 0) ( y < 3 * x^3 )`

○  `if ( x >= 0 ) { y <- 2 * x^2 } else (x > 0) { y <- 3 * x^3 - sqrt(x^5) }`

**Accepted Answers:**
*if ( x <= 0 ) ( y <- 2 * x^2 + abs(x - 6) ) else ( y <- 3 * x^3 - sqrt(x^5))*

3) Suppose `x = c(2,4,6,8,10)` then which one of the following is the correct output of    **1 point**
`ifelse(x<6,2*x,10*x)`?

○  20 40 12 16 20

○  20 40 60 80 100

○  4  8 12 16 20

○  4  8  60  80 100

**Accepted Answers:**
*4   8   60   80 100*

4) Which one of the following is the correct outcome of `for(i in 2:4) {print(1 + 2i)}`? *1 point*

○ `5 9 7`
○ `[1] 1`

`[1] 2i`

`[1] 1+2i`
○ `[1] 1+2i`

`[1] 1+2i`

`[1] 1+2i`
○ Error...

**Accepted Answers:**
*[1] 1+2i*

*[1] 1+2i*

*[1] 1+2i*

5) Which one of the following is the correct outcome of `for(i in 20:24){print(i+2*i)}`? *1 point*

○ `[1] i+2i`

`[1] i+2i`

`[1] i+2i`

`[1] i+2i`

`[1] i+2i`
○ `[1] 60`

`[1] 63`

`[1] 66`

`[1] 69`

`[1] 72`
○ Error...
○ None of these

**Accepted Answers:**
*[1] 60*

*[1] 63*

*[1] 66*

*[1] 69*

*[1] 72*

6) Which one of the following is the correct outcome of the following commands about while    ***1 point***
loop?

```
z <- 3
while (z < 15) {
print(c("R Course","is helpful."))
z = z + 2
print(c("R Course","is not helpful."))
z = z + 1
}
```

○ [1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

○ [1] "R Course"    "is helpful."  "R Course"        "is not helpful."
"R Course"    "is helpful."  "R Course"        "is not helpful."  "R
Course"    "is helpful."  "R Course"        "is not helpful."  "R
Course"    "is helpful."  "R Course"        "is not helpful."

○ [1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"    "is helpful."

[1] "R Course"        "is not helpful."

○ None of these

**Accepted Answers:**

*[1] "R Course"    "is helpful."*

*[1] "R Course"        "is not helpful."*

*[1] "R Course"    "is helpful."*

*[1] "R Course"        "is not helpful."*

```
[1] "R Course"     "is helpful."

[1] "R Course"        "is not helpful."

[1] "R Course"     "is helpful."

[1] "R Course"        "is not helpful."
```

7) Which one of the following is the correct outcome of the following while loop?          *1 point*

```
x <- 10
while(x < 50) {x <- x+10; if (x == 40) break; print(x^2);}
```

○ [1] 400

  [1] 900
○ [1] 1600

  [1] 2500
○ [1] 20

  [1] 30
○ [1] 20

  [1] 30

  [1] 40

  [1] 50

**Accepted Answers:**
*[1] 400*

*[1] 900*

8) Which one of the following is the correct outcome of the command `abs(seq(-2,2))`?          *1 point*

○ 2 1 0 1 2
○ 0 1 2
○ -2 -1 0 1 2
○ None of these

**Accepted Answers:**
*2 1 0 1 2*

9) Which one of the following is the correct output of the command `sqrt(abs(seq(-6,6,`          *1 point*
`by = 3)))`?

○ 0.000000 1.732051 2.449490
○ 2.449490 1.732051 0.000000 1.732051 2.449490
○ - 2.449490 -1.732051 0.000000 1.732051 2.449490
○ None of these

**Accepted Answers:**
*2.449490 1.732051 0.000000 1.732051 2.449490*

10) Which one of the following is the correct output of the command `seq(18,-18,by=-5)`?          *1 point*

○ −17  −12  −7  −2  3  8 13  18

○ −17  −12  −7  −3  3  7 12 17

○ 17  12  7  3  −3  −7 −12 −17

○ 18  13  8  3  −2  −7 −12 −17

**Accepted Answers:**
*18  13  8  3  −2  −7 −12 −17*

11) Which one of the following is the correct output of the command `seq(to = 100, length` **1 point**
`= 8)`?

○ 30  40  50  60  70  80  90 100

○ 93  94  95  96  97  98  99 100

○ 100  99  98  97  96  95  94 93

○ 101  102  103  104  105  106  107  108

**Accepted Answers:**
*93  94  95  96  97  98  99 100*

12) Which one of the following is the correct output of the command `seq(to = -20,` **1 point**
`length = 10)`?

○ −29 −28 −27 −26 −25 −24 −23 −22 −21 −20

○ −20 −21 −22 −23 −24 −25 −26 −27 −28 −29

○ 20  21  22  23  24  25  26  27  28  29

○ None of these

**Accepted Answers:**
*−29 −28 −27 −26 −25 −24 −23 −22 −21 −20*

13) Which one of the following is the correct output of the command `seq(to = 22, length` **1 point**
`= 5, by = 6)`?

○ 2 4 10 16 22

○ 22 16 10 4 2

○ −2 4 10 16 22

○ None of these

**Accepted Answers:**
*−2 4 10 16 22*

14) Which one of the following is the correct output of the command `seq(from = -10,` **1 point**
`length = 5, by = -0.3)`?

○ −11.2 −10.9 −10.6 −10.3 −10.0

○ −10.0 −10.3 −10.6 −10.9 −11.2

○ 10.0 10.3 10.6 10.9 11.2

○ 11.2 10.9 10.6 10.3 10.0

**Accepted Answers:**
*−10.0 −10.3 −10.6 −10.9 −11.2*

15)Which one of the following is the correct output of X for  the following commands          *1 point*

```
Y <- c(90, 77, 51, 20, 30, 60, 89)
X <- seq(along = Y)?
```

○  1   2   3   4   5   6   7

○  7   5   3   1   2   4   6

○  7   6   5   4   3   2   1

○  None of these

**Accepted Answers:**
*1   2   3   4   5   6   7*

16)Which one of the following is the correct output of  Y[X[2]] and  Y[X[6]]  for the command          *1 point*

```
Y <- c(900, 717, 251, 280, 302, 670, 897)
X <- seq(along = Y)?
```

○  **3**  and **4** respectively.

○  **4**  and **3** respectively.

○  **670**  and **717** respectively.

○  **717**  and **670** respectively.

**Accepted Answers:**
*717  and 670 respectively.*

17)Which one of the following is the correct command to generate a sequence of three yearly          *1 point*
dates 1-Jan-2015, 1-Jan-2016 and 1-Jan-2017?

○  `seq(as.Date("2015-01-01"), as.Date("2017-01-01"), by = "years")`

○  `seq(as.date("2015-01-01"), as.date("2016-01-01"), as.date("2017-01-01"),by = "years")`

○  `seq(as.Date(`2015-01-01'), as.Date(`2017-01-01'), by = `1')`

○  `seq(As.Date("2015-01-01"), As.Date("2017-01-01"), by = "years")`

**Accepted Answers:**
`seq(as.Date("2015-01-01"), as.Date("2017-01-01"), by = "years")`

18)Which one of the following is the correct command to generate the dates of 9 consecutive          *1 point*
months starting from 5 Jan 2017?

○  `seq(As.Date("2017-01-05"), by = "months", length = 9)`

○  `seq(as.date("2017-01-05"), by = "months", length = 9)`

○  `seq(as.Date("2017-01-05"), by = "months", length = 9)`

○  `seq(as.Date("2017-01-05") to as.Date("2017-09-05") by = "9")`

**Accepted Answers:**
`seq(as.Date("2017-01-05"), by = "months", length = 9)`

19)Which one of the following is the correct outcome of the command  `letter[1:3]`?          *1 point*

○  "a" "b" "c"

○  "A" "B" "C"

○  "4" "5"

○  Error...

**Accepted Answers:**
*Error...*

20)Which one of the following is the correct outcome of the command `LETTERS[18:12]`?    *1 point*

    ○ `"r" "q" "p" "o" "n" "m" "l"`

    ○ `"R" "Q" "P" "O" "N" "M" "L"`

    ○ `"L" "M" "N" "O" "P" "Q" "R"`

    ○ Error...

**Accepted Answers:**
*"R" "Q" "P" "O" "N" "M" "L"*

21)Which one of the following is the correct outcome of the command `rep(2:5,4)`?    *1 point*

    ○ `2 2 2 2 3 3 3 3 4 4 4 4 5 5 5 5`

    ○ `2 3 3 4 4 4 5 5 5 5`

    ○ `2 3 4 5 2 3 4 5 2 3 4 5 2 3 4 5`

    ○ `2:5 2:5 2:5 2:5`

**Accepted Answers:**
*2 3 4 5 2 3 4 5 2 3 4 5 2 3 4 5*

22)Which one of the following is the correct outcome of the command `rep(70:65, times=3)`?    *1 point*

    ○ `70 69 68 67 66 65 70 69 68 67 66 65 70 69 68 67 66 65`

    ○ `65 66 67 68 69 70 65 66 67 68 69 70 65 66 67 68 69 70`

    ○ `70 69 68 67 66 65 65 66 67 68 69 70 70 69 68 67 66 65`

    ○ `65 66 67 68 69 70 70 69 68 67 66 65 65 66 67 68 69 70`

**Accepted Answers:**
*70 69 68 67 66 65 70 69 68 67 66 65 70 69 68 67 66 65*

23)Which one of the following is the correct outcome of the command `rep(20:25, each=3)`?*1 point*

    ○ `20 21 22 23 24 25 20 21 22 23 24 25 20 21 22 23 24 25`

    ○ `20 20 20 21 21 21 22 22 22 23 23 23 24 24 24 25 25 25`

    ○ `20:25 20:25 20:25`

    ○ `25 25 25  24 24 24 23 23 23 20 20 20 22 22 22 21 21 21`

**Accepted Answers:**
*20 20 20 21 21 21 22 22 22 23 23 23 24 24 24 25 25 25*

24)Which one of the following is the correct outcome of the commands    *1 point*
       `x <- matrix(nrow=2, ncol=2, data=1:4, byrow=T)`
       `rep(x, each=3)`?

    ○ `1 1 1 4 4 4 3 3 3 2 2 2`

    ○ `1 1 1 3 3 3 2 2 2 4 4 4`

    ○ `1 2 3 4 1 2 3 4 1 2 3 4`

    ○ None of these

**Accepted Answers:**
*1  1  1  3  3  3  2  2  2  4  4  4*

25) Which one of the following is the correct outcome of the command `rep(c("name1",`        *1 point*
`"name2", "name3"), each=2)` ?

○ `"name1" "name1" "name2" "name2" "name3" "name3"`

○ `"name1" "name2" "name3" "name1" "name2" "name3"`

○ `name 1 2 3 name 1 2 3`

○ `name 1 1 name 2 2 name 3 3`

**Accepted Answers:**
*"name1" "name1" "name2" "name2" "name3" "name3"*

*1  1  1  3  3  3  2  2  2  4  4  4*

25) Which one of the following is the correct outcome of the command `rep(c("name1",`        *1 point*
`"name2", "name3"), each=2)` ?