

X

Assignment 2

- 1) Which one of the following is the correct specification to compute $y = \sqrt{\ln(x) + x^{1/3}}$ and what is its value for $x = 7590$? 1 point

- ☐ `y<- (x){sqrt(log(x) +x^(1/3))}, y = 53.46673`
- ☐ `y<-f(x){sqrt(log(x) +x^(1/3))} , y = 534.6673`
- ☐ `y<-function(x){sqrt(log(x)) +x^(1/3)}, y = 0.5346673`
- ☐ `y<- function(x){sqrt(log(x)+x^(1/3))}, y = 5.346673`

Accepted Answers:

`y<- function(x){sqrt(log(x)+x^(1/3))}, y = 5.346673`

- 2) Which one of the following is the correct outcome of `z(12,14)` of the function specified as `z=function(x,y){sqrt(x^2+y^2)+exp(-(x^2+y^2))-(x^2+y^2)^(2/4)}`? 1 point

- ☐ `-29.28675`
- ☐ `0.9880258`
- ☐ `37.8662`
- ☐ None of these

Accepted Answers:

`0.9880258`

- 3) Which one of the following is the correct command to obtain the following matrix? 1 point

$$x = \begin{pmatrix} 1 & 4 & 7 \\ 2 & 5 & 8 \\ 3 & 6 & 9 \end{pmatrix}$$

- ☐ `x=matrix(1:9,3,3,byrow=T)`
- ☐ `x=mat(1:9,3,3, byrow=T)`
- ☐ `x=matrix(1:9,3,3,byrow=F)`
- ☐ `x=mat(1:9,3,3,byrow=F)`

Accepted Answers:

```
x=matrix(1:9,3,3,byrow=F)
```

4) Which one of the following is the correct command to obtain the following matrix?

1 point

$$Z = \begin{pmatrix} 5 & 6 & 7 \\ 8 & 9 & 10 \end{pmatrix}$$

- ☐ `z <- matrix(nrow=2, ncol=3, data=c(5,6,7,8,9,10), byrow=T)`
☐ `z <- matrix(nrow=3, ncol=2, data=c(5,8,6,9,7,10), byrow=T)`
☐ `z <- matrix(nrow=2, ncol=3, data=(5,6,7,8,9,10), byrow=T)`
☐ `z <- matrix(nrow=3, ncol=2, data=(5,6,7,8,9,10), byrow=T)`

Accepted Answers:

```
z <- matrix(nrow=2, ncol=3, data=c(5,6,7,8,9,10), byrow=T)
```

5) Which one of the following is the correct outcome of the command `x[3,2]` for the matrix constituted by the command

1 point

```
X<-matrix(1:9,3,3,byrow=F)?
```

- ☐ 3
☐ 6
☐ 7
☐ 8

Accepted Answers:

6

6) Which one of the following is the correct outcome of the commands `dim(x)` and `dim(y)` for the matrices obtained by

1 point

```
x<-matrix(1:100,50,2,byrow=T) and y<-matrix(1:100,50,2,byrow=F)?
```

- ☐ 50 2 and 2 50 respectively.
☐ 2 50 and 50 2 respectively.
☐ 2 50 and 2 50 respectively.
☐ 50 2 and 50 2 respectively.

Accepted Answers:

```
50 2 and 50 2 respectively.
```

7) Which one of the following is the correct outcome of the command `x <- diag(3, nrow=2, ncol=2)?`

1 point

- ☐ $x = \begin{pmatrix} 3 & 3 & 3 \\ 3 & 3 & 3 \end{pmatrix}$
☐ $x = \begin{pmatrix} 3 & 3 & 3 \\ 3 & 3 & 3 \end{pmatrix}$
☐ $x = \begin{pmatrix} 0 & 3 & 0 \\ 0 & 0 & 3 \end{pmatrix}$

☐ $x = \begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix}$

Accepted Answers:

$$x = \begin{pmatrix} 3 & 0 \\ 0 & 3 \end{pmatrix}$$

8) Which one of the following is the correct outcome of the command `t(x)` for

1 point

`x<-matrix(nrow=3,ncol=2,data=6:11,byrow=T) ?`

☐ `[,1] [,2] [,3]`

`[1,] 6 8 10`

`[2,] 7 9 11`

☐ `[,1] [,2]`

`[1,] 6 9`

`[2,] 7 10`

`[3,] 8 11`

☐ `[,1] [,2] [,3]`

`[1,] 6 7 8`

`[2,] 9 10 11`

☐ None of these

☐

Accepted Answers:

`[,1] [,2] [,3]`

`[1,] 6 8 10`

`[2,] 7 9 11`

9) Which one of the following is the correct command to obtain the multiplication of two matrices **1 point**
`x` and `y` of the same order?

☐ `x*y`

☐ `%*y`

☐ `x%*%y`

☐ `x%*%*%y`

Accepted Answers:

`x%*%y`

10) Which one of the following is the correct command to obtain the multiplication of two matrices **1 point**

$x = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ and $y = \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$ along with its correct answer?

☐ `x*y`

and its correct answer is

`[,1] [,2]`

`[1,] 19 22`

`[2,] 43 50`

☐ `x**y`

and its correct answer is

`[,1] [,2]`

`[1,] 19 43`

`[2,] 22 50`

☐ `x**%y`

and its correct answer is

`[,1] [,2]`

`[1,] 19 22`

`[2,] 43 50`

☐ `x%**%y`

and its correct answer is

`[,1] [,2]`

`[1,] 50 43`

`[2,] 22 19`

Accepted Answers:

`x**%y`

and its correct answer is

`[,1] [,2]`

`[1,] 19 22`

`[2,] 43 50`

11) Let `x<- matrix(nrow=2, ncol=2, data=1:4, byrow=T)` then which one of the following is the correct outcome of `2*x` ?

1 point

☐ `[,1] [,2]`

`[1,] 2 4`

`[2,] 6 8`

☐ `[,1] [,2]`

`[1,] 2 6`

`[2,] 4 8`
☐ `[,1] [,2]`

`[1,] 2 4`

`[2,] 8 6`

☐ None of these

Accepted Answers:

`[,1] [,2]`

`[1,] 2 4`

`[2,] 6 8`

12) Which one of the following is the correct outcome of the addition of two matrices

1 point

$x = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ and $y = \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$ along with its correct answer?

☐ `x + y`

and its correct answer is

`[,1] [,2]`

`[1,] 6 8`

`[2,] 10 12`

☐ `x %+% y`

and its correct answer is

`[,1] [,2]`

`[1,] 6 8`

`[2,] 12 10`

☐ `x %%% y`

and its correct answer is

`[,1] [,2]`

`[1,] 10 12`

`[2,] 6 8`

☐ `x %%%+ y`

and its correct answer is

`[,1] [,2]`

`[1,] 6 8`

`[2,] 10 12`

Accepted Answers:`x + y`*and its correct answer is*`[,1] [,2]``[1,] 6 8``[2,] 10 12`

13) Let `x<- matrix(nrow=2, ncol=2, data=1:4, byrow=T)` then which one of the following is the correct outcome of `2**x` ?

1 point
☐ `[,1] [,2]`
`[1,] 2 4``[2,] 6 8`
☐ `[,1] [,2]`
`[1,] 2 6``[2,] 4 8`
☐ Error....

☐ None of these
Accepted Answers:*Error....*

14) Which one of the following is the correct outcome of `x[,2]` for the matrix specified by

1 point`x<-matrix(nrow=3,ncol=3,data=c(10,20,30,40,50,60,70,80,90),byrow=F)?`
☐ `[1] 40 50 60`
☐ `[1] 20 50 80`
☐ `[1] 10 50 90`
☐ None of these
Accepted Answers:`[1] 40 50 60`

15) Which one of the following is the correct outcome of `x[2:3,2:3]` for the matrix specified by

1 point

`x<-matrix(nrow=3, ncol=3, data=c(10,20,30,40,50,60,70,80,90), byrow=F)?`

☐ `[,1] [,2]`
`[1,] 50 60``[2,] 80 90`
☐ `[,1] [,2]`
`[1,] 50 80``[2,] 60 90`

☐ `[,1] [,2]`

`[1,] 20 80`

`[2,] 30 90`

☐ None of these

Accepted Answers:

`[,1] [,2]`

`[1,] 50 80`

`[2,] 60 90`

16) $\begin{pmatrix} 40 & 70 \\ 50 & 80 \end{pmatrix}$ 1 point

Which one of the following is the correct command to get the matrix from the matrix specified by

`x<-matrix(nrow=3,ncol=3,data=c(10,20,30,40,50,60,70,80,90),byrow=F)?`

☐ `x[1:2, 1:2]`

☐ `x[1:2, 2:3]`

☐ `x[1:1, 2:2, 3:3, 4:4]`

☐ None of these

Accepted Answers:

`x[1:2, 2:3]`

17) $x = \begin{pmatrix} 12 & 18 & 10 \\ 23 & 34 & 56 \\ 12 & 64 & 22 \end{pmatrix}$ 1 point

If then which one of the following is the correct command and its outcome for obtaining the inverse of the matrix `x`?

☐ `solve(x) =`

`[,1] [,2] [,3]`

`[1,] 0.13899235 -0.01195844 -0.03273868`

`[2,] -0.00813566 -0.00705744 0.02166242`

`[3,] -0.05214664 0.02705352 0.00029406`

☐ `inv(x) =`

`[,1] [,2] [,3]`

`[1,] 0.13899235 -0.01195844 -0.03273868`

`[2,] -0.00813566 -0.00705744 0.02166242`

`[3,] -0.05214664 0.02705352 0.00029406`

☐ `inv(x) =`

`[,1] [,2] [,3]`

```
[1,] 0.13899235 -0.01195844 -0.03273868
```

```
[2,] -0.05214664 0.02705352 0.00029406
```

```
[3,] -0.00813566 -0.00705744 0.02166242
```

☐ `solve(x) =`

```
      [,1]      [,2]      [,3]
```

```
[1,] 0.13899235 -0.01195844 -0.03273868
```

```
[2,] -0.05214664 0.02705352 0.00029406
```

```
[3,] -0.00813566 -0.00705744 0.02166242
```

Accepted Answers:

`solve(x) =`

```
      [,1]      [,2]      [,3]
```

```
[1,] 0.13899235 -0.01195844 -0.03273868
```

```
[2,] -0.00813566 -0.00705744 0.02166242
```

```
[3,] -0.05214664 0.02705352 0.00029406
```

18 Suppose `x` is any vector as `x=c(100,200, 300, 1:100, NA)` then which one of the following is the correct outcome of the command `mean(x)` ?

1 point

- ☐ 54.85437
- ☐ 140.2
- ☐ Error.....
- ☐ NA

Accepted Answers:

NA

19 Which one of the following is the correct outcome of the command `(x<5) && (x>2) & (x<5) || (x>2) || (x==7)` when `x=3` and when `x=-3` ?

1 point

- ☐ FALSE and FALSE respectively.
- ☐ TRUE and FALSE respectively.
- ☐ FALSE and TRUE respectively.
- ☐ TRUE and TRUE respectively.

Accepted Answers:

TRUE and FALSE respectively.

20 Suppose `x = 3:7` then which one of the following is the correct outcome of the command `(x > 3) & (x < 5)` ?

1 point

- ☐ FALSE TRUE FALSE FALSE FALSE
- ☐ TRUE FALSE TRUE TRUE TRUE
- ☐ TRUE TRUE TRUE FALSE FALSE
- ☐ FALSE FALSE FALSE TRUE TRUE

Accepted Answers:*FALSE TRUE FALSE FALSE FALSE*

21 Suppose $x = 33:53$ then which one of the following correctly specifies the outcomes of the following statements: **1 point**

$x[(x > 28) \ \& \ (x < 59)]$ and $x[(x > 28) \ || \ (x < 59)]$?

☐ are different for both as

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 and
23 24 25 26 27 28 29 30 41 42 43 44 45 46 47 48 49 50 51 52 53 respectively.

☐ are the same for both as

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

☐ are different for both as

23 24 25 26 27 28 29 30 41 42 43 44 45 46 47 48 49 50 51 52 53 and
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

respectively.

☐

Accepted Answers:*are the same for both as*

33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53

22 Suppose $x = 30:70$ then which one of the following is the correct command to know that which of the values in x are more than 20 and less than 50? **1 point**

☐ $x[(x > 20) \ \& \ (x < 50)]$

☐ $(x > 20) \ \& \ (x < 50)$

☐ $x[(x \geq 20) \ \& \ (x \geq 50)]$

☐ None of these

Accepted Answers: $x[(x > 20) \ \& \ (x < 50)]$

23 Suppose $x = 53:97$ then which one of the following is the correct outcome of **1 point**

$(x > 92) \ \&\& \ (x < 85)$ and $(x > 92) \ || \ (x < 85)$?

☐ **TRUE** and **FALSE** respectively.

☐ **FALSE** and **FALSE** respectively.

☐ **TRUE** and **TRUE** respectively.

☐ **FALSE** and **TRUE**

Accepted Answers:*FALSE and TRUE respectively.*

24 Suppose $x = 3:7$ then which one of the following is the correct outcome of $x[(x > 2) \ || \ (x < 5)]$? **1 point**

☐ **TRUE**

☐ **FALSE**

☐ **3 4 5 6 7**

☐ None of these

Accepted Answers:

