1. *What type of data is contained in the variable a?*
    a. Variable a contains text so it is a character data type.
2. *What type of data is contained in the variable b1?*
    a. Variable b1 is a numeric data
3. *What type of data is contained in the variable b2?*
    a. Variable b2 is a string so it is character data.
4. *What happens when you add b1 and b2 and why?*
    a. You would result in an error, adding two different types of data, numeric and character.
5. *Are the variables b1 and c1 of the same type?*
    a. B1 and c1 are both numeric data types, c1 is an integer set of values.
6. *Explain what happens when you add b1 and c1. Consider both the number of elements in each variable and the data types.*
    a. You will end up with 4 numeric values, the value of b1 added to each integer in c1, so (45.6, 46.6, 47.6, 48.6).

7. *Show the R code you used to create v1.*
    a. > v1 = c(-2:2)
8. *Show the R code you used to create v2.*
    a. > v2 = c(v1*3)
9. *Show the R code you used to calculate the sum of elements in v2.*
    a. > sum = sum(v2)   and   >sum

```
> v1 = c(-2:2)
> v2 = c(v1*3)
> sum = sum(v2)
> sum
[1] 0
>
```

10. *Show the code you used to create mat_1.*
    a.
11. *Show the code you used to create mat_2.*
    a.

```
> vec_4 = c(1:12)
> mat_1 = matrix(vec_4, byrow = TRUE, nrow = 3)
> mat_2 = matrix(vec_4, byrow = FALSE, nrow = 3)
> mat_1
     [,1] [,2] [,3] [,4]
[1,]    1    2    3    4
[2,]    5    6    7    8
[3,]    9   10   11   12
> mat_2
     [,1] [,2] [,3] [,4]
[1,]    1    4    7   10
[2,]    2    5    8   11
[3,]    3    6    9   12
>
```

12. *Show the R code you used to create my_list_1.*
    a.
13. *Show the R code that would select third element of the list.*
    a.
14. *Show the R code that selects the list element with the name "one".*
    a.

```
> my_list_1 = list(5.2, "five point two", 0:5)
> names(my_list_1) = c("two", "one", "three")
> my_list_1[[3]]
[1] 0 1 2 3 4 5
> my_list_1[["one"]]
[1] "five point two"
>
```

15. *Show the R code that you used to create* `my_bool_vec`.

```
> my_vec = rep(1:3, 5)
> my_vec
 [1] 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3
> my_bool_vec = c(my_vec == 3)
> data.frame(my_vec, my_bool_vec)
   my_vec my_bool_vec
1       1       FALSE
2       2       FALSE
3       3        TRUE
4       1       FALSE
5       2       FALSE
6       3        TRUE
7       1       FALSE
8       2       FALSE
9       3        TRUE
10      1       FALSE
11      2       FALSE
12      3        TRUE
13      1       FALSE
14      2       FALSE
15      3        TRUE
```

a.

16. *Show the R code that you used to perform the subsetting.*

```
> my_vec[my_bool_vec == TRUE]
[1] 3 3 3 3 3
```

a.