Exercise 1

If:

```
X = c(NA,3,14,NA,33,17,NA,41)
is.na(X)
```

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

```
!is.na(X)
```

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

Then what will be the value of:

```
X[!is.na(X)]
```

Exercise 2

If:

```
Y = 21:28
Z=data.frame(X,Y)
Z
```

```
##    X  Y
## 1 NA 21
## 2  3 22
## 3 14 23
## 4 NA 24
## 5 33 25
## 6 17 26
## 7 NA 27
## 8 41 28
```

```
Z[is.na(Z)] <- 0
Z
```

```
##    X  Y
## 1  0 21
## 2  3 22
## 3 14 23
## 4  0 24
## 5 33 25
## 6 17 26
## 7  0 27
## 8 41 28
```

Then write an expression that will replace all instances of "NA" with the number 10 in the following vector "P":

```
P = c(X,33,NA,400,12,0,15)
P
```

```
##  [1]  NA   3  14  NA  33  17  NA  41  33  NA 400  12   0  15
```

Exercise 3

Consider the following vector:

```
W <- c (11, 3, 5, NA, 6)
```

Write some R code that will return TRUE for the missing element in the vector W.

Exercise 4

Given the vector A:

```
A <- c (33, 21, 12, NA, 7, 8)
```

Write some code that will calculate the mean of A.

Exercise 5

Load 'Orange' dataset...

```
data(Orange)
head(Orange) # Take a look at first 6 rows
```

```
##   Tree  age circumference
## 1    1  118            30
## 2    1  484            58
## 3    1  664            87
## 4    1 1004           115
## 5    1 1231           120
## 6    1 1372           142
```

Replace all values of age=118 with NA.

Exercise 6

For the following data frame X:

```
c1 <- c(1,2,3,NA)
c2 <- c(2,4,6,89)
c3 <- c(45,NA,66,101)
X <- data.frame(c1,c2,c3)
```

If:

```
X
```

```
##   c1 c2  c3
## 1  1  2  45
## 2  2  4  NA
## 3  3  6  66
## 4 NA 89 101
```

```
complete.cases(X)
```

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

Write some code that will display only the rows with missing values.

Exercise 7

Given the following data frame:

```
df <- data.frame (Name = c("NA", "Joseph", "Martin", NA, "Andrea"),
                  Sales = c(15, 18, 21, 56, 60),
                  Price = c(34, 52, 21, 44, 20),
                  stringsAsFactors = FALSE)
df
```

```
##     Name Sales Price
## 1     NA    15    34
## 2 Joseph    18    52
## 3 Martin    21    21
## 4   <NA>    56    44
## 5 Andrea    60    20
```

Write some code to remove rows where "Name" is missing.