Exercise 5.17 - Find the Bug

- ```
  x <- 0:9
  if (x[1] = 1) {
    print(x)
  }
  ```

Bug: The assignment operator "=" is used instead of the comparison operator "==".

Corrected Code:

```
x <- 0:9
if (x[1] == 1) {
  print(x)
}
```
```

- ```
  myfactorial <- function(x) {
    if (x == 1)
      return(1)
    else
      return(x * myfactorial(x))
  }
  ```

Bug: Recursive call causes infinite recursion, so call must decrease x in each step to reach the base case.

Corrected Code:

```
myfactorial <- function(x) {
  if (x == 1)
    return(1)
  else
    return(x * myfactorial(x - 1))
}
```
```

```
f <- function(n, p = -1) {
  if (sqrt(p) == 1)
    1
  else
    0
}
f(1)
```

There is two Bugs:

1- The function calculate sqrt(-1), which is not defined for real numbers in R Language. This results is NaN, and comparing NaN == 1 returns NA, so the if statement fail with the error:

```
Error in if (sqrt(p) == 1) return(1) else return(0) :
  missing value where TRUE/FALSE needed
In addition: Warning message:
In sqrt(p): NaNs produced
```

2- n is declared as a parameter, but it is not used inside the function.

Corrected Code:

```
f <- function(p = -1) {
  if (p >= 0 && sqrt(p) == 1)
    return(1)
  else
    return(0)
}
```