

```
# Define a number
```

```
x <- -3
```

```
# Use if-else to classify the number
```

```
if (x > 0) {  
  print("Positive")  
} else if (x < 0) {  
  print("Negative")  
} else {  
  print("Zero")  
}
```

```
## [1] "Negative"
```

```
# Print cubes of numbers from 1 to 5
```

```
for (i in 1:5) {  
  print(paste("The cube of", i, "is", i^3))  
}
```

```
## [1] "The cube of 1 is 1"
```

```
## [1] "The cube of 2 is 8"
```

```
## [1] "The cube of 3 is 27"
```

```
## [1] "The cube of 4 is 64"
```

```
## [1] "The cube of 5 is 125"
```

```
# Print even numbers from 2 to 10
```

```
x <- 2  
while (x <= 10) {  
  print(x)  
  x <- x + 2  
}
```

```
## [1] 2
```

```
## [1] 4
```

```
## [1] 6
```

```
## [1] 8
```

```
## [1] 10
```

```
# Print numbers from 10 to 1 using repeat loop
```

```
x <- 10  
repeat {  
  print(x)  
  x <- x - 1  
  if (x < 1) break  
}
```

```
## [1] 10
```

```
## [1] 9
```

```
## [1] 8
```

```
## [1] 7
```

```
## [1] 6
```

```
## [1] 5
```

```
## [1] 4
```

```
## [1] 3
```

```
## [1] 2
```

```
## [1] 1
```

```

# Define a vector
x <- 2:6

# Calculate cubes using vectorized operation
x_cubed <- x^3
print(x_cubed)

## [1] 8 27 64 125 216

# Calculate the median
median_value <- median(c(15, 25, 35))
print(paste("The median is", median_value))

## [1] "The median is 25"

# Calculate the product
product_value <- prod(1:5)
print(paste("The product is", product_value))

## [1] "The product is 120"

# Calculate the standard deviation
sd_value <- sd(c(10, 20, 30, 40, 50))
print(paste("The standard deviation is", sd_value))

## [1] "The standard deviation is 15.8113883008419"

# Find the range
range_value <- range(c(7, 5, 12))
print(paste("The range is", range_value[1], "to", range_value[2]))

## [1] "The range is 5 to 12"

# Calculate the logarithm
log_value <- log(100, base = 10)
print(paste("The logarithm value is", log_value))

## [1] "The logarithm value is 2"

# Define a function to compute the cube of a number
cube <- function(x) {
  return(x^3)
}

# Use the function
result <- cube(3)
print(paste("The cube of 3 is", result))

## [1] "The cube of 3 is 27"

# Define a function to compute the sum of cubes
cubes_sum <- function(x, y) {
  return(x^3 + y^3)
}

# Use the function
result <- cubes_sum(2, 3)
print(paste("The sum of cubes of 2 and 3 is", result))

```

```
## [1] "The sum of cubes of 2 and 3 is 35"

# Define a function to normalize a vector of numbers
normalize <- function(x) {
  m <- mean(x) # mean of the input
  s <- sd(x) # standard deviation of input
  return((x - m) / s) # calculate the normalized values
}

# Use the function
x <- c(10, 20, 30, 40, 50)
normalized_values <- normalize(x)
print(normalized_values)

## [1] -1.2649111 -0.6324555 0.0000000 0.6324555 1.2649111

# Define a function to normalize a vector of numbers with explicit return
normalize <- function(x) {
  m <- mean(x)
  s <- sd(x)
  normalized <- (x - m) / s
  not_normalized <- (x + m) / s
  return(normalized)
}

# Use the function
x <- c(10, 20, 30, 40, 50)
normalized_values <- normalize(x)
print(normalized_values)

## [1] -1.2649111 -0.6324555 0.0000000 0.6324555 1.2649111

# Define a function to convert distances
convert_distance <- function(distance, to_kilometers = TRUE) {
  if (to_kilometers) {
    converted <- distance * 1.60934
  } else {
    converted <- distance / 1.60934
  }
  return(converted)
}

# Use the function
distance <- c(10, 20, 30)
converted_distance <- convert_distance(distance, to_kilometers = FALSE)
print(converted_distance)

## [1] 6.213727 12.427455 18.641182
```