SET-17

1.

```
x <- c(68, 64, 75, 50, 64, 80, 75, 40, 55, 64)

y <- c(62, 58, 68, 45, 81, 60, 68, 48, 58, 70)

correlation_coefficient <- cor(x, y)

cat("Pearson correlation coefficient:", correlation_coefficient)
```

OUTPUT:

```
Pearson correlation coefficient: 0.6016874
```

2.

```
data(mtcars)

model <- lm(mpg ~ ., data = mtcars)

summary(model)
```

OUTPUT:

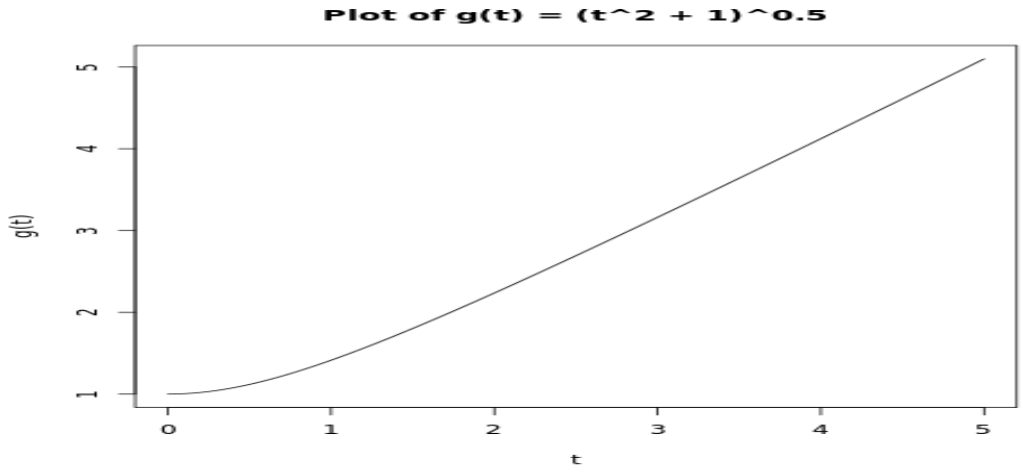
```
gear         0.65541    1.49326   0.439   0.6652
carb        -0.19942    0.82875  -0.241   0.8122
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.65 on 21 degrees of freedom
Multiple R-squared:  0.869,  Adjusted R-squared:  0.8066
F-statistic: 13.93 on 10 and 21 DF,  p-value: 3.793e-07
```

3.

```
g <- function(t) {
  sqrt(t^2 + 1)
}
curve(g, from = 0, to = 5, xlab = "t", ylab = "g(t)", main = "Plot of g(t) = (t^2 + 1)^0.5")
```

OUTPUT:



4.

```
factorial <- function(n) {
  result <- 1
  for (i in 1:n) {
    result <- result * i
  }
  return(result)
}
numbers <- c(3, 5, 7, 4, 6)
factorials <- sapply(numbers, factorial)
cat("Factorials:", factorials)
```

OUTPUT:

```
[Execution complete with exit code 0]
```