```
> # Aufgabe 2 (Serie 9)
> # Plotausgabe in Datei
> postscript(file = "./serie_9_plot.ps")
> # Teil a
> tiefe <- c(0, 0.2, 0.5, 0.6, 0.8, 0.9, 1.2, 6)
> temp <- c(6, 4.2, 0.6, -2.1, -5.2, -7.3, -8.9, 15)
> plot(tiefe, temp, main="Streudiagramm")
> # Interpretation
> # klassischer Messfehler (Ablesefehler, Schreibfehler, (Vorzeichen verhängt))
> # nicht berücksichtigtes Phänomen (Erdwärme?, Nobelpreis,...)
> # Teil b
> tiefeoA <- tiefe[-8]
> tempoA <- temp[-8]
> cor(tiefeoA,tempoA)
[1] -0.986533
> # schöner Wert
> cor(tiefe,temp)
[1] 0.604961
> # gar kein schöner Wert, Steigung positiv!
> # Teil c
> fit1 <- lm(temp ~ tiefe)
> fit2 <- lm(tempoA ~ tiefeoA)
> abline(fit2)
> abline(fit1)
> # Teil d
> summary(fit1)

Call:
lm(formula = temp ~ tiefe)

Residuals:
    Min      1Q  Median      3Q     Max
-9.0023 -4.9011  0.7531  3.9237  8.8616

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   -2.862      2.950  -0.970    0.370
tiefe          2.470      1.327   1.861    0.112

Residual standard error: 6.836 on 6 degrees of freedom
Multiple R-Squared: 0.366,      Adjusted R-squared: 0.2603
F-statistic: 3.463 on 1 and 6 DF,  p-value: 0.1121

> # H_0 : mu = 0
> # H_A : mu ¬ 0
> # t_{8-2}_{0.975} = 2.447
> # beta_1 = 2.470, sigma = 1.327
> # beta_1/sigma = 1.861
> # beta_1/sigma < t_{8-2}_{0.975}
> # => H_0 beibehalten
> summary(fit2)

Call:
lm(formula = tempoA ~ tiefeoA)

Residuals:
      1       2       3       4       5       6       7
-0.3681  0.5594  1.0506 -0.2857 -0.6583 -1.3945  1.0966

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)   6.3681     0.7191   8.856 0.000305 ***
```



```
tiefeoA     -13.6373     1.0111 -13.487 4.01e-05 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 1.021 on 5 degrees of freedom
Multiple R-Squared: 0.9732,     Adjusted R-squared: 0.9679
F-statistic: 181.9 on 1 and 5 DF,  p-value: 4.013e-05

> # H_0 : mu = 0
> # H_A : mu ¬ 0
> # t_{7-2}_{0.975} = 2.571
> # beta_1 = -13.6373, sigma = 1.0111
> # |beta_1/sigma| = 13.488
> # beta_1/sigma > t_{8-2}_{0.975}
> # => H_0 verwerfen
```