Übung 5

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Aufgabe 38

```
boat.mean <- 9.85
age.mean <- 6.5
boat.sd <- 6.1
age.sd <- 4.5
boat.r <- -0.96

# r = cov(x,y) / (sd(x) * sd(y))
# var(x) = sd(x)^2
# cov(x,y) = r * sd(x) * sd(y)
# x = age, y = boat

age.cov <- boat.r * age.sd * boat.sd
age.var <- age.sd^2

b <- age.cov / age.var
a <- boat.mean - b * age.mean
y <- function(x) { return(a + b*x) }

data.table <- data.frame("Cov" = age.cov,
                         "Alter Varianz" = age.var,
                         "Intercept" = a,
                         "Slope" = b,
                         "Preis" = paste(c(y(5) * 1000, "€"), collapse = "")
)
kable(data.table)
```

Cov	Alter.Varianz	Intercept	Slope	Preis
-26.352	20.25	18.30867	-1.301333	11802€

Aufgabe 39

6 Waggons 2 erste Klasse 3 zweite Klasse 1 Gepäckwaggon

```
x <- (factorial(6)) / (factorial(2) * factorial(3) * factorial(1))
```

Es gibt `x` verschiedene Waggonreihungen