> shoesize<-c(38,38,39,39,40,40,41,41,42,42)

> bodysize<-c(153,161,167,169,173,176,182,181,188,189)

**X** is a matrix with 2 columns, one of which is filled with 1’s, and the other is the vector

of x-values (shoesize-values),

**XT**, which then has two rows (the first of which is just 1’s) consisting of 10 values,

**XTX,** whichis a 2 by 2 matrix,

**(XTX)-1**, which of course is also 2 by 2,

**XTy** where **y** is the vector of y-values (bodysize-values) – **XTy** will be a 2-vector,

**b = (XTX)-1 XTy**, this will also be a 2-vector of coefficients,

**ypred = X(XTX)-1 XTy**, this will of course be a 10-vector of bodysize-predictions.

Now calculate the residual standard error using

ss\_res<-sum((ypred – y)^2)

ms\_res<-ss\_res / 8

rse<-sqrt(ms\_res)

Using the two diagonal elements of **(XTX)-1**, calculate the standard error of each of the

two coefficients (don't forget to take sqare roots).

Now calculate a t-value for each coefficient (i.e coefficient / its standard error), and from

this a p-value, using the t-distribution, pt(...,8,lower.tail=FALSE) for 8 degrees of

freedom.