> #### First we input the data:

>

> (x <- c(54,50,68,67,51,67,53,54,64,55,69,59,62,61,69))

[1] 54 50 68 67 51 67 53 54 64 55 69 59 62 61 69

> (y <- c(97,102,115,128,86,118,105,106,112,96,120,110,111,114,128))

[1] 97 102 115 128 86 118 105 106 112 96 120 110 111 114 128

>

> #### Next we compute the paired difference:

>

> ((diff <- x - y))

[1] -43 -52 -47 -61 -35 -51 -52 -52 -48 -41 -51 -51 -49 -53 -59

> (n = length(diff))

[1] 15

>

> #### Using this vector we can compute the sample mean and standard deviation:

>

> (d\_bar <- mean(diff))

[1] -49.66667

> (s\_d <- sd(diff))

[1] 6.510065

>

> #### Now, we compute the value from the t distribution with n - 1 df and at 1 - (alpha / 2) level:

>

> (crit <- qt(.95,n-1))

[1] 1.76131

>

> #### Finally, we compute both sides of the confidence interval:

>

> (lower\_ci <- d\_bar - (crit \* (s\_d / sqrt(n))))

[1] -52.62724

> (upper\_ci <- d\_bar + (crit \* (s\_d / sqrt(n))))

[1] -46.7061

>

> #### The 90% paired confidence interval for the mean difference is (-52.62,-46.71)

> #### Since -30 is not in the interval, we reject the null hypothesis at alpha = .1