

Class 13, Homework Assignment

Question 1 (2 points). Create your own function to calculate x square minus y square. Use the function to calculate the result when x is -10 and y is 6.

Question 2 (2 points). Create your own function to calculate the sum of several numbers. Use the function to calculate the sum of 1.1, 2.2, and 3.3, and the sum of a matrix with integers from 1 to 4, 2 rows and 2 columns.

Question 3 (2 points). Improve the function in question 2 to make it work for numbers saved as character values. Use the improved function on a vector with these values: '1', '10', '100', '1000'.

Question 4 (4 points). Use the code provided below to generate a random time series. Create a function to conduct temporal smoothing (i.e. calculate the mean of several consecutive numbers). Use the function to calculate the mean of every 3 consecutive numbers and every 9 consecutive numbers. Plot the original time series and two smoothed time series you created in a single graph.

```
ts <- rnorm(n=100, mean=10, sd=2)
```