

TMA4192 WEEK 2 HOMEWORK

These homeworks are intended to be quick exercises to help you identify the key ideas from the previous week and keep them fresh in your mind ready for next week. If you find you are spending a long time on them, try discussing them with someone else or talk about it in class!

1. FOR THURSDAY 19 JANUARY 2023

- (1) Why is S^n closed in R^{n+1} ?
- (2) Summarise why our definition of a continuous map (Definition 2.4) is equivalent to the $(\epsilon - \delta)$ -definition (Definition 2.5) from analysis.
- (3) Consider each letter of the alphabet as a topological space. How many sets of equivalent (homeomorphic) letters are there in your full name? (Hint: use topological properties)
- (4) What is your favourite result, definition, or idea from Week 2?