MATH-331 Intro. to Real Analysis — Pierre-Olivier Parisé
Team test 02 — Fall 2021, 20/10/2021

Name of the members of the team: _____

Team name (if any): _____

Question:	1	2	Total
Points:	10	10	20
Score:			

Instructions: You must answer all the questions in teams of 3 and hand out one copy per team. You are allowed to use the lecture notes only. No other tools such as a cell-phone, a calculator, or a laptop. Only your pen and eraser. The space between the questions are there to write the final versions of your answers.

Question 1 **(10 pts)**

Let $f : [0, 2] \to \mathbb{R}$ be the function defined by $f(x) = x^3 + 2x - 1$ and let $L = 0$. Find the interval $[a_3, b_3]$ constructed in the proof of the Intermediate Value Theorem. (Exceptionnally, you can use the calculator to do some of the calculations.)

Question 2 **(10 pts)**

Let $S, T \subseteq \mathbb{R}$ be two open sets. Show that $S \cap T$ is an open set. [Hint to start: Try to illustrate the situation and what you want to prove with a picture.]