Exercise 1 Calc. : ✗

Une suite arithmétique strictement croissante (a_n) et une suite géométrique (b_n) ont le même premier terme $a_1 = b_1 = 2$.
De plus, les deux suites (a_n) et (b_n) ont le même troisième terme $a_3 = b_3$.
La somme des trois premiers termes de la suite arithmétique est supérieure de 4 à la somme des trois premiers termes de la suite géométrique.
Trouver l'expression du n-ième terme de chacune des suites (a_n) et de (b_n). 7 marks

Exercise 2 Calc. : ✗

The Corbett Nation Park reserve in India is a natural reserve where we can see tigers.

1. This reserve is home to 8 tigers, five of which are marked.

   We capture three tigers, what is the probability that two of them be marked? 2 marks

   Give the result as an irreducible fraction.

2. A group of 8 tourists arrives on the site for a safari.

   Four of these tourists must get into the first car, that has four different places. How many different ways can they fit in the car? 2 marks

3. We know that 40% of visitors to Corbett Nation Park are European.

   Among Europeans, 10% see a tiger.

   We also know that 20% of visitors to this reserve see a tiger.

   We come across a non-European visitor at random. Calculate the probability that he saw a tiger. 2 marks

4. Every day, the probability that a tourist sees a tiger is of 0.2.

   (a) Calculate the probability that a tourist sees a tiger for the first time on the third day of his visit. 2 marks

   (b) We note $P(X = n) = p_n$ the probability that a tourist sees a tiger for the first time on the n-th day of his visit. Show that the sequence (p) is a geometric sequence of which we will specify the first term and reason. 2 marks

   (c) Show that $P(X \leq n) = 1 - 0,8^n$. Interpret this result in this context. 3 marks