

Sujet n°3

Please do not write on this document and do not forget to hand it back to the jury at the end of the exam.

Sequences



FIGURE 1 – Léon Marchand J.O. 2024

Bob Bowman is a famous swimming coach. He coached the U.S Olympic team for many years. One famous swimmer of his team was Michael Phelps, who won twenty three gold medals at the Olympics.

In 2021, B. Bowman received an email from a young French swimmer asking him for a scholarship and a place in his swimming team. B. Bowman agreed and did not regret it since this young French swimmer is Léon Marchand, who won four gold medals at 2024 Paris summer Olympics.

The trainings of Bob Bowman are known to be very demanding for the swimmers.

"It varies day by day, but in a given week, I train about 25 to 30 hours a week. I swim about 10 times a week for 2 hours, and then I have dryland or weights training five days a week for about an hour each. It's a lot." said Léon.

Usually, Léon swims 10 kms 10 times a week. For the preparation for 2024 Paris summer Olympics, Bob wanted to toughen up training. He planned to increase this distance of 400 *m* every week in order to reach a distance of 14 km 10 times a week.

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1. Consider that the first week of April 2024, Léon swam 10 kms 10 times a week. The preparation for the olympics started then. When did Léon reach the goal set by Bob?
 2. From April to this week, how many kilometers did Léon swim overall?

Hint : You may use a sequence (d_n) where $d_0 = 10$ and d_n corresponds to the distance that Léon swam the n^{th} week.

Were you interested in 2024 Paris summer Olympics? Do you know some famous english or american swimmers or sportsmen?

Vocabulary :

dryland training : entraînement hors de l'eau

weights training : musculation