

**Sujet n°19**

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

**Functions**

In a sports training program, an athlete's performance (measured in points per game) improves over time due to consistent training.

Initially, the athlete scores 10 points per game.

The performance increases by 5% per week.

- 1) Find a model of the athlete's performance over time, and determine the athlete's performance after 8 weeks.
- 2) To be selected for the Commonwealth games, the athlete needs to score at least 30 points per game ; how many weeks are needed to achieve this performance ?