

<p style="text-align: center;">BACCALAURÉAT GÉNÉRAL ET TECHNOLOGIQUE ÉPREUVE SPÉCIFIQUE DES SECTIONS EUROPÉENNES MATHÉMATIQUES – ANGLAIS</p>

Corrigé 14 – The Numbers Game

Thème : Numbers and sequences

Answers:

1. Mathematics is useful, but can also be an amusement. Let's play a simple game!
2. a) You should call 4: $8 + 4 = 12$
b) You should call 1: your opponent will not be able to reach 12, but you will be on your next call
c) There is a kind of paradox: the two players can't lose but in the end, there will be only one winner. Actually, you can't lose only if you're player A and start with 1.
3. a) It's an arithmetic sequence: there's a common difference of 11.
b) $a_n = 12 + 11(n - 1)$ or $1 + 11n$
4. a) 4, 8, 12 and 16
b) Let's call Q the quotient and R the remainder of the Euclidean division of N divided by P+1.
In other words, $N = Q (P + 1) + R$.
The sequence of "key" numbers is : R, R + P + 1, R + 2 (P + 1), ... , N – (P + 1)

And to check if the candidate has understood, you can also play the game!