

Sections Européennes - Session 2025

Sujet n°22

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

PROBABILITY

In today's digital age, online shopping platforms have become increasingly popular, allowing customers to share their experiences through reviews. These reviews can significantly influence potential buyers' decisions. However, the reliability of these reviews is often questioned.

Consider an online shopping platform that allows customers to leave reviews for products they have purchased. The platform is investigating the reliability of these reviews. Let A be the event "A review is authentic" and B be the event "A review is positive".

A review is selected at random.

A statistic survey provides following information :

- 80% of reviews on the platform are authentic.
- Among authentic reviews, 70% are positive.
- Among fake reviews, 90% are positive.

1. The platform claims that "Over 85% of our positive reviews are authentic"
Assess the accuracy of this statement based on your mathematical calculations.
2. Discuss what insights can be drawn about the relationship between review authenticity and positivity. Base your arguments on the comparison of the probability of a review being positive given that it is authentic, and the probability of a review being positive given that it is not authentic.