BACCALAUREAT – Session 2017

Epreuve de Discipline Non Linguistique

Mathématiques/Anglais

Topic: functions

Overbooking

Thousands of holiday-makers are suffering from the growing scandal of passengers being 'bumped' off over-booked flights. […]
The airline industry admits it is standard practice to accept more reservations than there are seats. The practice, which is not illegal, is justified by the airlines on the grounds that, statistically, some passengers will not show up. […]
'Bumping' involves airline staff in departure lounges asking passengers to stay behind in return for cash compensation and a seat on the next available flight. Airlines have no set rules about which passengers they will order off a flight if there are not enough volunteers.
However, passengers travelling with children, the disabled or other vulnerable people such as pregnant women are unlikely to be first choice. Airlines will also be reluctant to alienate those who have paid full fare, particularly businessmen.

http://www.dailymail.co.uk/news/article-67221/Scandal-overbooked-holiday flights.html#ixzz2bxEN7gra

Questions

1. Present and pick out the main points in the document.

2. The airline company would like to avoid empty seating on its flight. In order to maximize its benefit (in pounds), the company takes the risk of a maximum of 50 per cent overbooked seats out of a 150 seat flight. Suppose x denotes the number of seats a company plans to sell. The benefit function R is set up as follows: $R(x) = -5x^2 + 1{,}810x - 138{,}510$.
   a. Complete the sentence : x varies from … to …
   b. How many extra tickets should the company sell in order to have the optimal overbooking policy?
   c. What will be the maximum expected benefit from this optimal policy?

3. What are the advantages and disadvantages for customers in overbooking?
   What are the advantages and disadvantages for an airline company in overbooking?