

BACCALAURÉAT-Session 2017

Epreuve de Discipline Non Linguistique

Mathématiques/Anglais

Topic: probabilities

Postcodes



Since 1840, when the 'Penny Post' was introduced by *Rowland Hill*, there have been many changes in the Postal Service, and in recent years many technological advances.

Much of the mail is now automatically sorted. Of particular importance has been the introduction of Postcodes, which were started in 1966 and now cover the whole of the UK.

This alpha-numeric system is made up of between 5 and 7 numbers and letters. Because people can remember a mixture of numbers and letters more easily than, for example, just numbers, letters and numbers are mixed to divide the whole country efficiently and effectively into: areas, districts, sectors and units. Here is a typical postcode.

AREA		DISTRICT		SECTOR		UNIT	
A	N	1	3	1	P	F	
Any letters		any digit 0 to 9		any digit 1 to 9	any letters		

Adapted from: CIMT Plymouth (website)

Questions

- 1) What does the text say about the remembering of numbers and letters? Do you think it's true? Give two other examples of postcodes starting by the area code: AN.
- 2) The postman picks up a letter at random:
 - a. Compute the probability of getting the area code: AN?
 - b. What is the probability of getting an odd district number?
- 3) The postman picks up 10 letters at random. We want to determine the probability that at least one letter has the area code: AN.
 - a. What is the distribution involved in this problem?
 - b. Work out the probability that at least one letter has the area code: AN.
- 4) There are about 24 million households and business addresses in the UK.
 - a. Can each one have a unique postcode?
 - b. Why do you think the Post Office does not identify each address with a unique postcode?