BaccalaurÉat gÉnÉral et technologique

# Session 2012

## ÉPREUVE SPÉCIFIQUE MENTION « SECTION EUROPEENNE OU DE LANGUE ORIENTALE »

Académies de Paris-Créteil-Versailles

**Binôme : Anglais / Mathématiques**

**PROBABILITY**

**Sujet D7 - 04**

*The first part of this page is a summary that can be helpful to do the exercise.*

Let A and B be two events with .

The multiplication rule states that:



where  means the probability that A occurs given that B has already occurred.

 is described as a conditional probability: it represents the probability of A conditional upon B having occurred. Re-arranging the multiplication rule gives:

 

**EXERCISE**

Anna and Ben take part in a quiz.

The probability that Anna thinks she knows the answer to any question is 0.6.

If Anna thinks she knows, the probability that she is correct is 0.9.

Otherwise she guesses and the probability that she is correct is 0.2.

1) Copy and complete the tree diagram:

0.6

Anna thinks

she knows

Anna guesses

0.9

Correct answer

Wrong answer

Correct answer

Wrong answer

2) Find the probability that Anna

(i) Thinks she knows the answer and is correct.

(ii) Gets the correct answer.

3) The probability that Ben thinks he knows the answer to any question is 0.55.

If Ben thinks he knows, he is always correct.

Otherwise he guesses and the probability that he is correct is 0.2.

 (i) Draw a tree diagram for Ben.

(ii) Find the probability that Ben gets the correct answer.

4) There are 100 questions in the quiz.

Estimate the number of correct answers given by

(i) Anna.

(ii) Ben.

Adapted from IGCSE (2002).