

**BACCALAURÉAT GÉNÉRAL ET TECHNOLOGIQUE  
ÉPREUVE SPÉCIFIQUE DES SECTIONS EUROPÉENNES  
MATHÉMATIQUES – ANGLAIS**

**SUJET 15**

**Thèmes : Probabilities**

**Ce sujet comporte 2 pages. L'usage de la calculatrice est autorisé.**

**Chocolate Math**

Let's sum it up: I cannot add.  
Finding a difference drives me mad.  
I hate reminders and it's true,  
Multiplication makes me blue.

5 Those plastic sticks just don't do it.  
Who thought that up really blew it.  
We'll do well with a new device,  
These M&Ms will be real nice.

10 This subject now will be a treat  
As Chocolate Math is really sweet!  
I'll be an adder who never misses  
While adding piles of chocolate kisses.

15 Here's a device found at the store:  
Ten Tootsie Rolls, and I'll eat four.  
Then I'll say, "I still have six."  
With Chocolate Subtraction Tricks.

20 Now division can be done in haste  
When it's done with a little taste.  
With remainders I'll have a ball,  
I'll pick them up and eat them all.

To multiply we will be able  
To put some chocolate on the table.  
Two candy bars times four are eight. (ate)  
That product we'll assimilate.

25 If teachers would not preach and nag  
But assign our homework from a bag,  
All students could be math fanatics  
By using Chocolate Mathematics.

—Grandpa Tucker  
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1. Dégager les idées essentielles du texte ci-dessus.

## 2. Questions mathématiques

A chocolate maker sells boxes of chocolates. 60% of the boxes he sells are boxes of milk chocolates, the others are dark chocolates. Among the boxes of milk chocolates, 30% contain hazelnuts and among the boxes of dark chocolates, only 10% contain hazelnuts.

A customer comes in the store to buy a box of chocolates.

Let  $M$  be the event “the customer buys a box of milk chocolates “

Let  $H$  be the event “the customer buys a box that contains chocolates with hazelnuts”

- a)** Build a probability tree.
- b)** What is the probability that the customer buys a box of milk chocolates with hazelnuts?
- c)** What is the probability that the customer buys a box of chocolates containing hazelnuts?
- d)** What is the probability that the customer buys a box of milk chocolates given that he buys a box with hazelnuts?
- e)** A box of milk chocolate without hazelnut costs \$5 and one with hazelnuts costs \$6 dollars. The price of a box of dark chocolates is \$8 without hazelnuts and \$9 with hazelnuts.

The chocolate maker sells 100 boxes per day.

Calculate his average earning for one day.