

June 2021

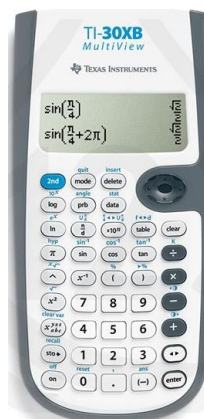
European School Brussels III

PART B: WITH CALCULATOR

DATE: 11 June 2021

Duration of the exam: 1 period (45 min.)

Materials: With calculator



S5MA4ENA

/25

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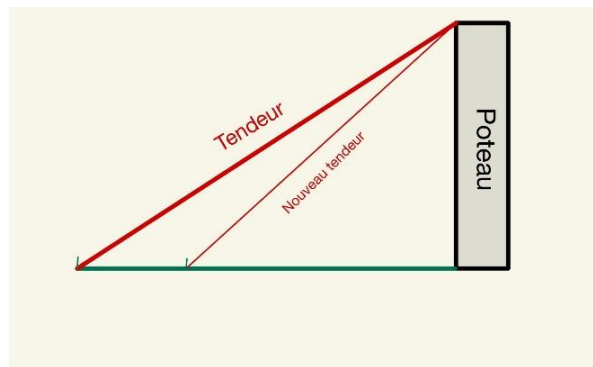
Name:

- Clearly number your answers on your answer sheets.
- Write down all intermediate steps in the calculations.
- Take time to read and review everything after solving all questions.

Question B1

/7

A post is held by a tensioner, according to the figure below.



From the turnbuckle anchor point, located 18 meters from the base of the post ("Poteau"), the top of the post can be seen at a 36° angle.

a) What is the height of the post ("Poteau")? (round to 2 d. p.)

/2

b) What is the length of the tensioner ("tendeur")? (round to 2 d. p.)

/2

In the rest of the exercise, we consider that the post has a height of 13.08 meters.

c) A new tensioner ("Nouveau tendeur") is anchored 6 meters closer to the post. What angle does it make with the horizontal?

/3

Question B2

/9

In two classes A and B the same test was given. The maximum score was 10. The results are below.

Class A

score	absolute frequency
1	2
3	1
5	6
8	2
10	1

Class B

There are 6 students in this class. One of them got a 10, four students scored 5, and one scored 4.

(a) How many students are there in class A?

/2

(b) Calculate the mean of both classes. (round to 3 d. p.)

/2

(c) Calculate the standard deviation of class B. (round to 3 d. p.)

/3

(d) What is the meaning of a standard deviation?

/2

Question B3**/9**

A statistical survey has shown that 12% of the athletes of a given sport use a certain doping substance.

A lab offers a test.

This test is positive in 95% of all cases in which athletes have taken the doping substance.

Unfortunately, this test is also positive in 2% of all cases in which athletes have not taken the drug.

Give your results in percentage.

We define the following events :

T: athlete tested positive

D: athlete taken doping

- a) Illustrate the above data by completing the table below or by using a tree diagram.

	D		
T		176	
	1200	8800	10000

An athlete is randomly selected.

- b) Give the probability that the test of the athlete is positive.
c) The test of the athlete is positive. Calculate the probability that the athlete has really used the doping substance.

/3**/3****/3**