Corrigé du sujet 1
Theme : Algorithms

For the first part, the expected points are :
• Give a definition of an algorithm.
• Give examples and uses of algorithms.

Exercise

1. a. $4 \times 10 + 2 \times 20 + 2x = 80 + 2x$.

The perimeter of this plot of land is $80 + 2x$ metres.

b. $10x + 20x = 30x$. The area of this plot of land is $30x$ metres.

2. a. $Area = 9 \times Perimeter$.

So : $30x = 9 \times (80 + 2x)$

$30x - 18x = 720$

$12x = 720$

$x = 60$. The missing length x is 60 metres.

b. $Perimeter = 80 + 2x = 80 + 2 \times 60 = 200.$

He needs 200 metres of fencing materials.

3. a. $30 \times 60 = 1,800$. The area is 1,800 square metres.

$138,600 \div 1,800 = 77$. The price of this piece of land is €77 per square metre.

b. $\dfrac{138,600 - 142,000}{142,000} \times 100 \approx -2.4$.

The price decreased of 2.4% during that year.

Bonus : William wants to go across his plot of land, going straight from point A to point E. What is the distance AE he will have to walk?

Using Pythagoras's theorem : $AE = \sqrt{(10+20)^2 + (10+60)^2} = \sqrt{5,800} \approx 76.2$ *metres.*