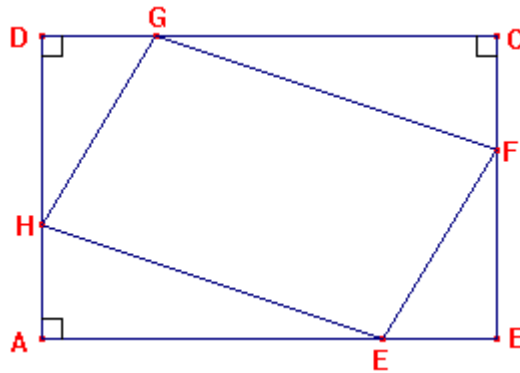


FUNCTIONS

Please do not write on the exam paper, and do not forget to give back the examination paper at the end of the test.

An artist wants to create a work on a rectangular wall measuring 6 metres long and 4 metres high. He wants to draw a parallelogram as shown below :



$AB = 6 \text{ m}$; $AD = 4 \text{ m}$.

Let x be the length of AH , BE , CF and DG .

1. Justify that the area of the parallelogram $EFGH$ can be written as the function :

$$A(x) = 2x^2 - 10x + 24 .$$

2. Find the value of x that minimizes the area of the parallelogram.
3. For the artist, his work will be perfect if the area of the parallelogram is 1.5 times the minimum area. Help the artist to achieve a perfect work.