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Machine project phase 1

Designing a transformer in Simulink,matlab

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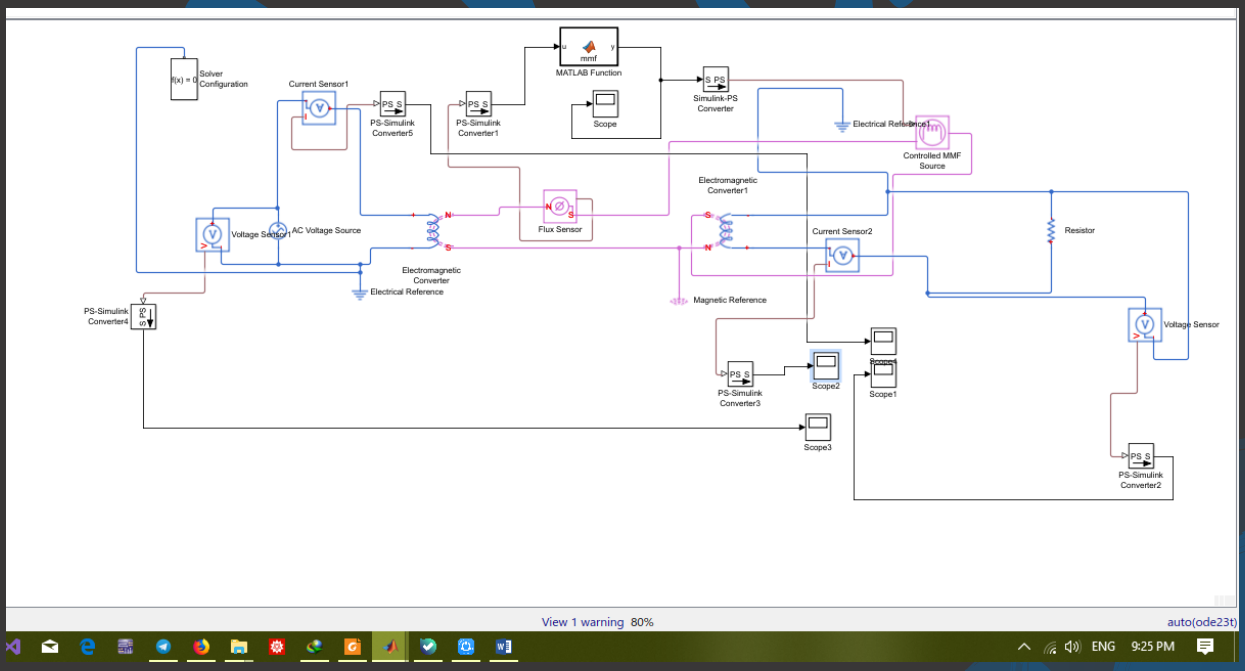
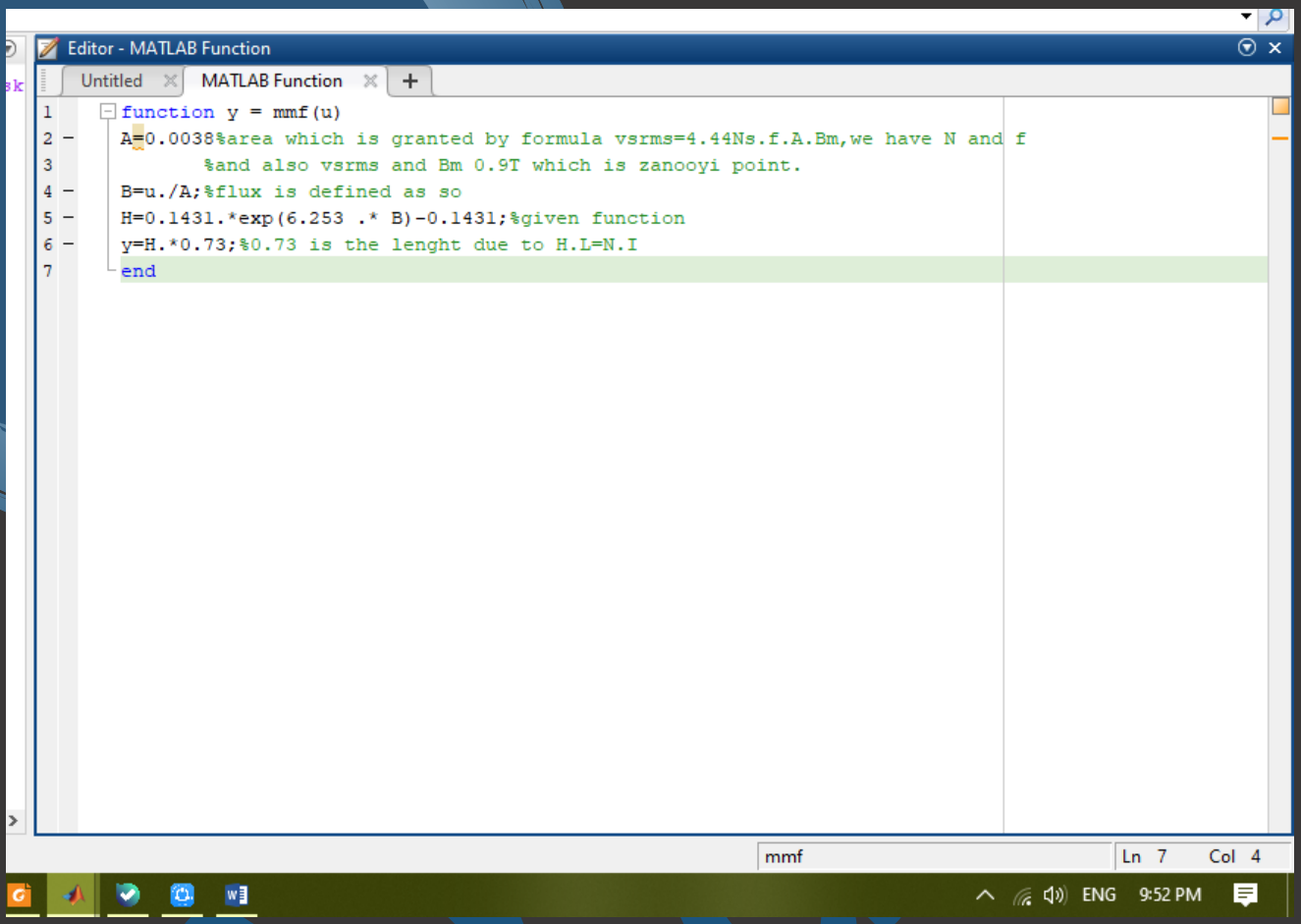
Due date:15/2/1398

First of all we start by a explanation of the project then we go to Simulink design and at the end answering the questions.

We use 2 sensors at each side of the circuit to discover current and voltage given and driven by the procedure explained in the pdf file given.
4 scopes are used to show the needed information .
Using 180UI core and finding the length and using that in formula H.L=N.I to find N.I and drive it to the circuit.



The circuit is shown at the top. Flux and voltage and current sensors are used there. flux sensor output is given to matlab function to obtain H which is needed for getting N.I .



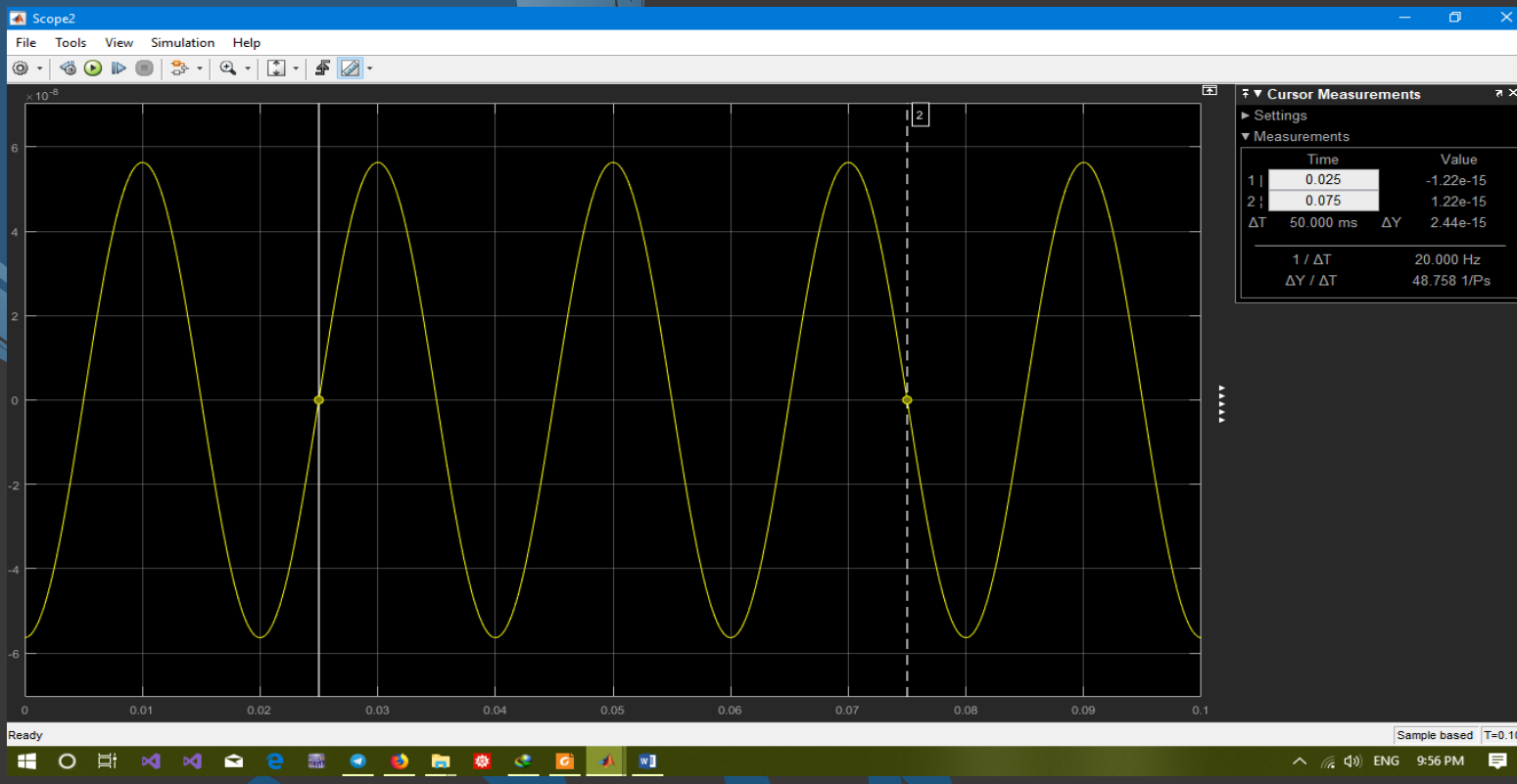
The code in the following page is written to get flux and then calculate the B and then by the formula obtaining the H.
At last N.I=H.L and L=0.73 which I calculated.

N=300 so by the formula we get A=0.0038.

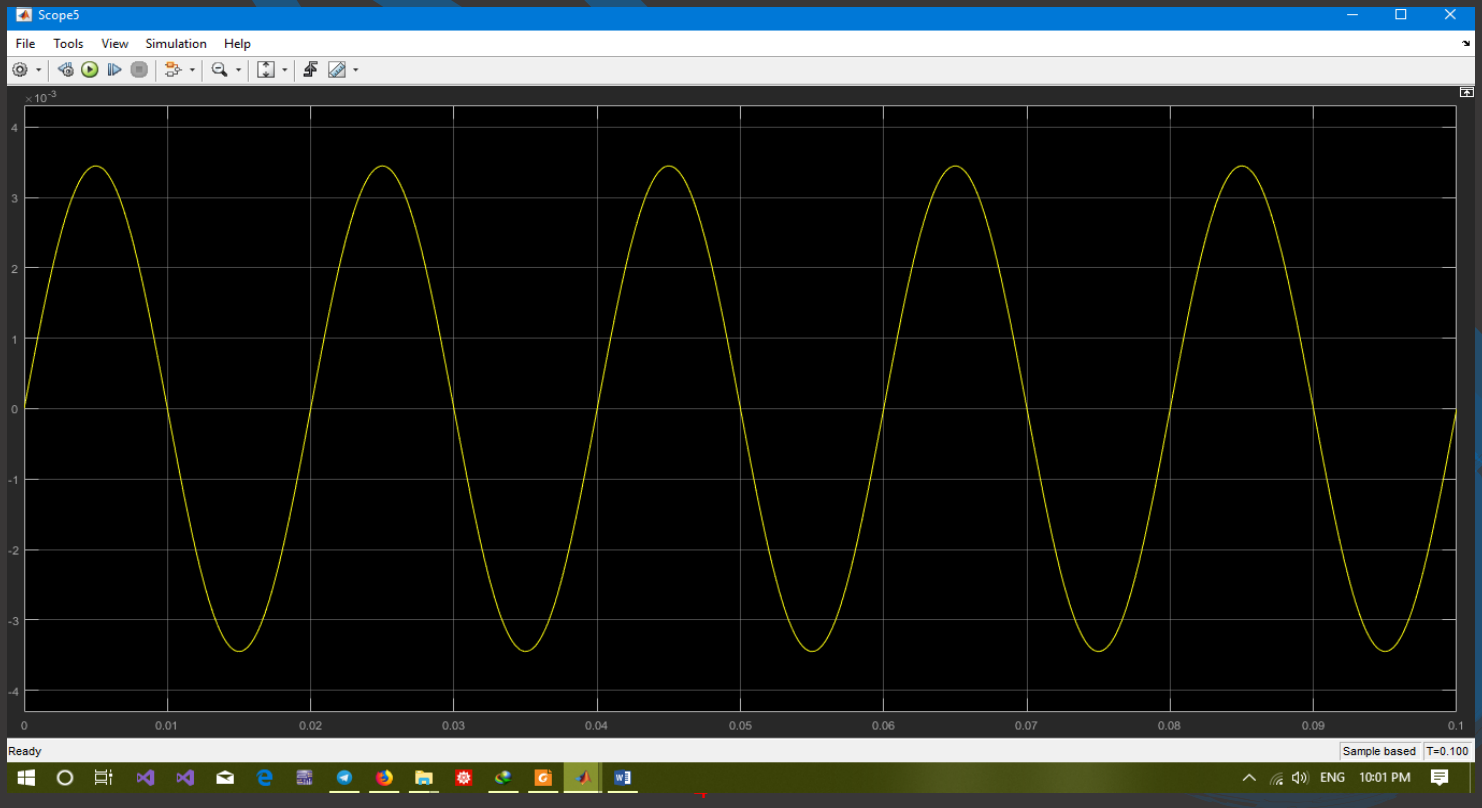
Matlab App

Questions:

1. RL=1Gohm => the current:



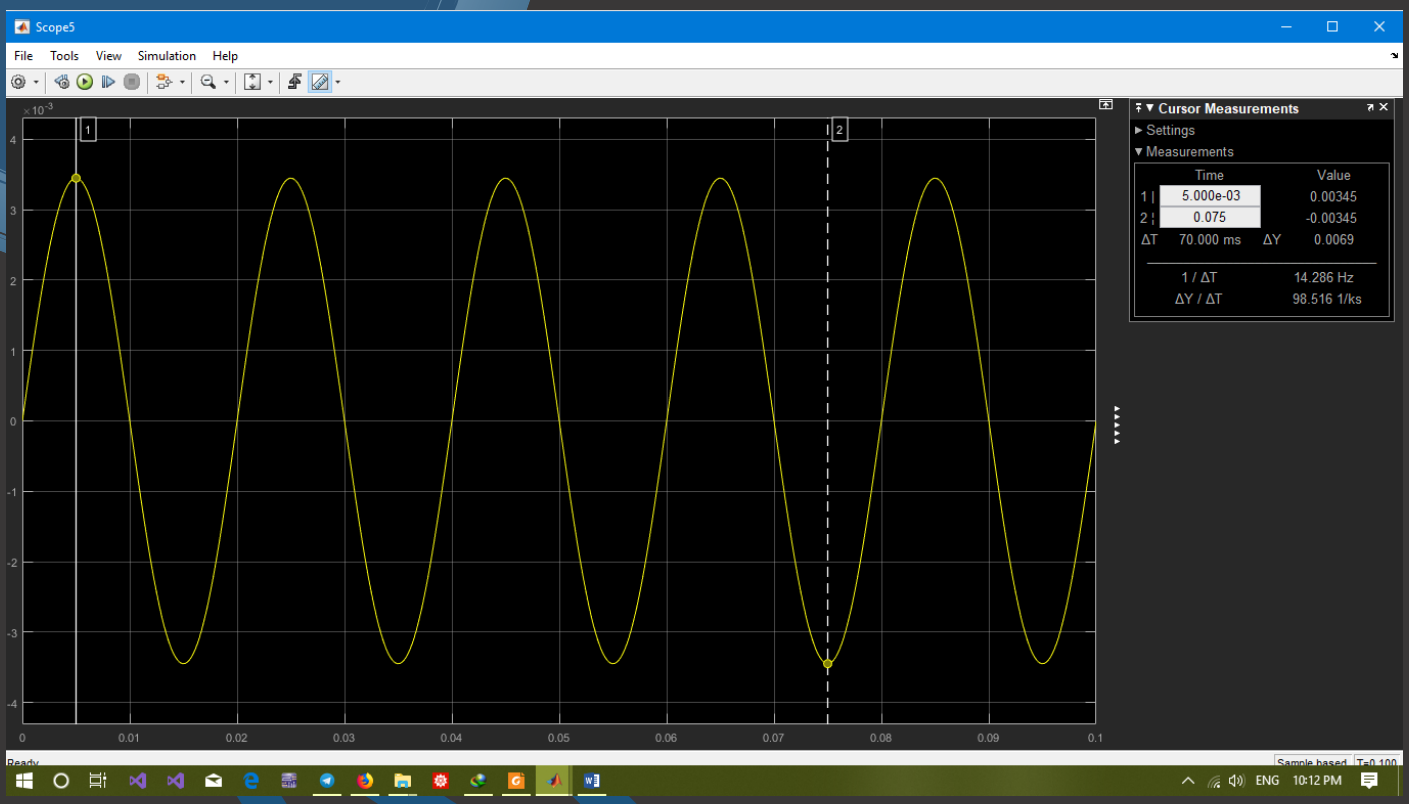
The flux:



They both seem to be sinoside by the way.

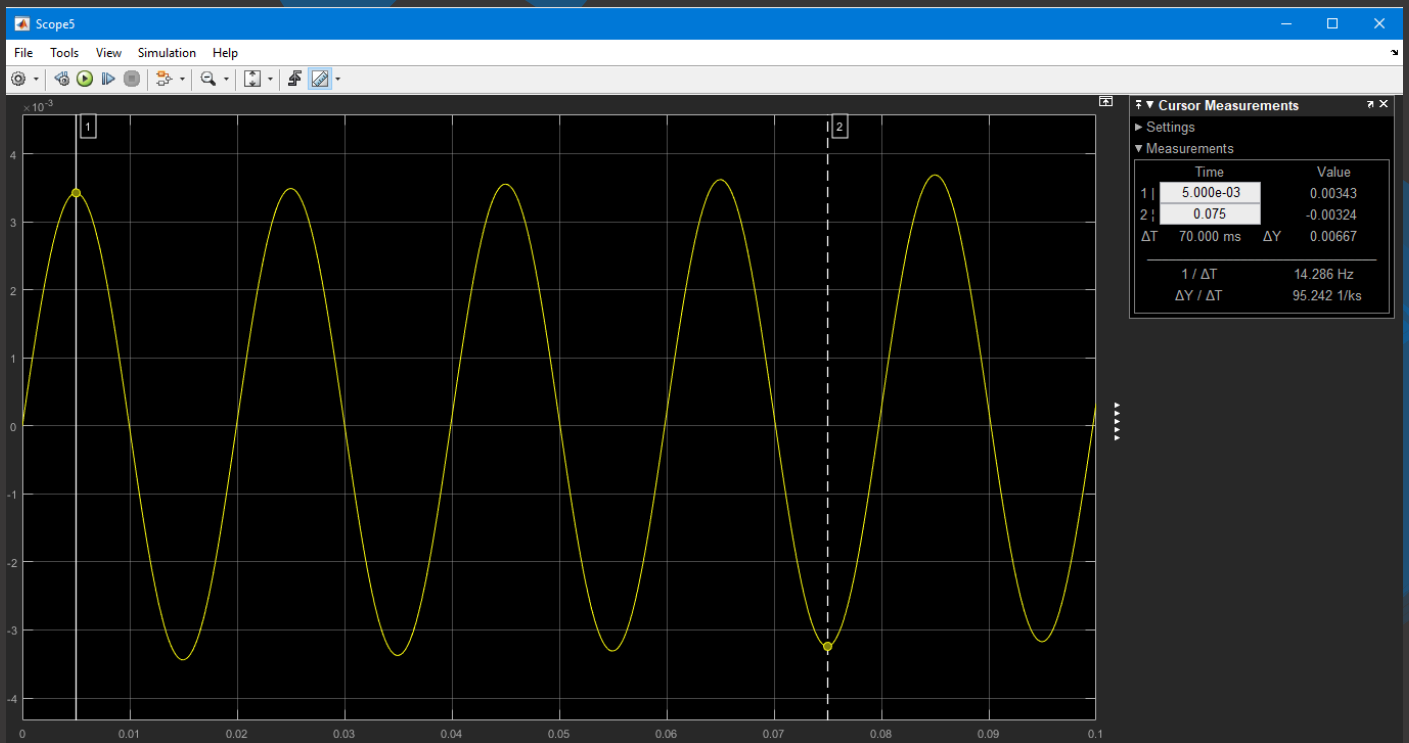
3. Voltage pik is 56.3 in the output and input voltage pik is 325volt and a=325/56.3=5.77 which is not our desired a. 230/4=5.75
We have a bit of diffenrence.

4. Pik of flux is 3.45*10^-3 so Bm=0.907 which is almost equal to Bm=0.9 as we desired



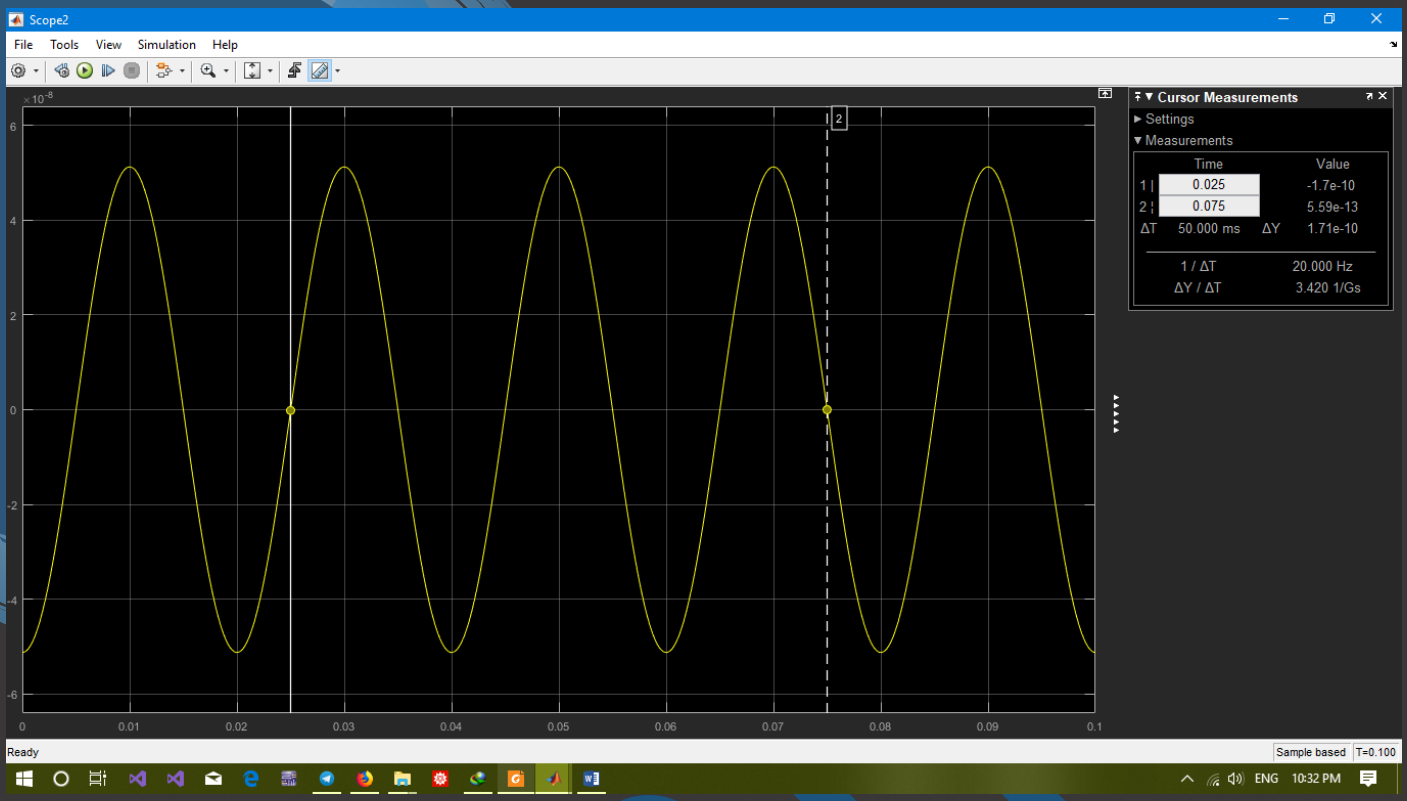
5. By applying those resistors we get :

Flux:



Matlab App

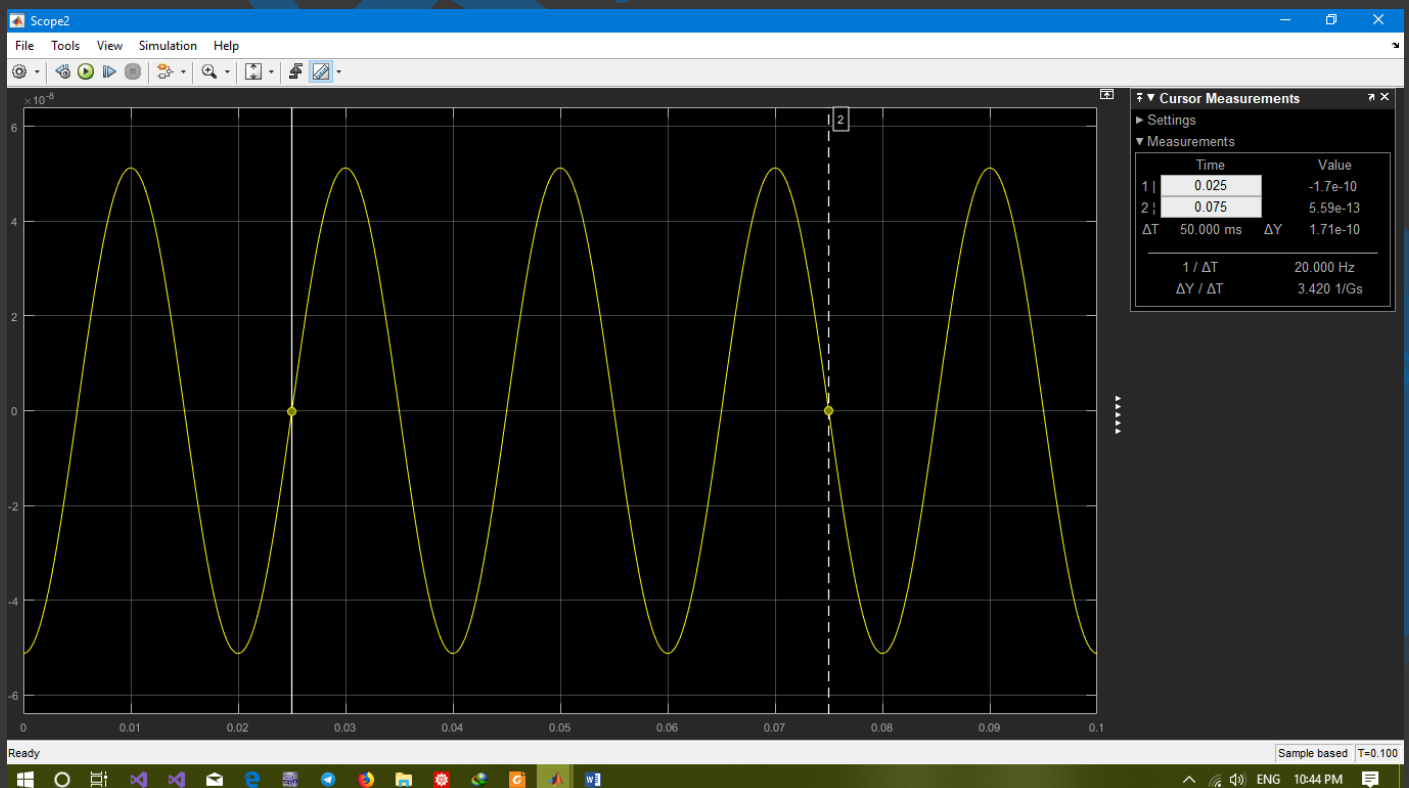
Current:



They are still like a sioside

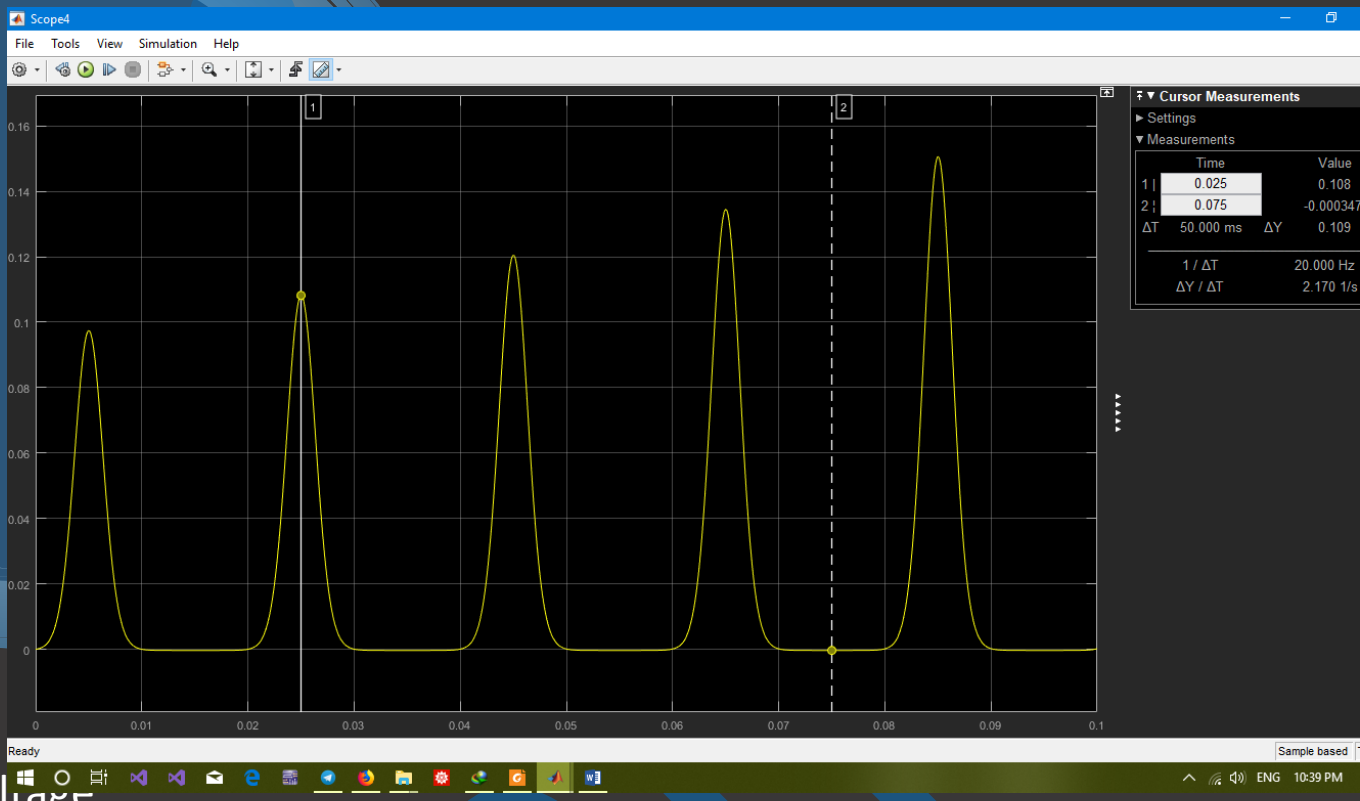
Phy=1/N*(integral of v dt) and as v is AC ans sinoside then phy will look like a sinoside.

6. The current would look like:OUTPUT



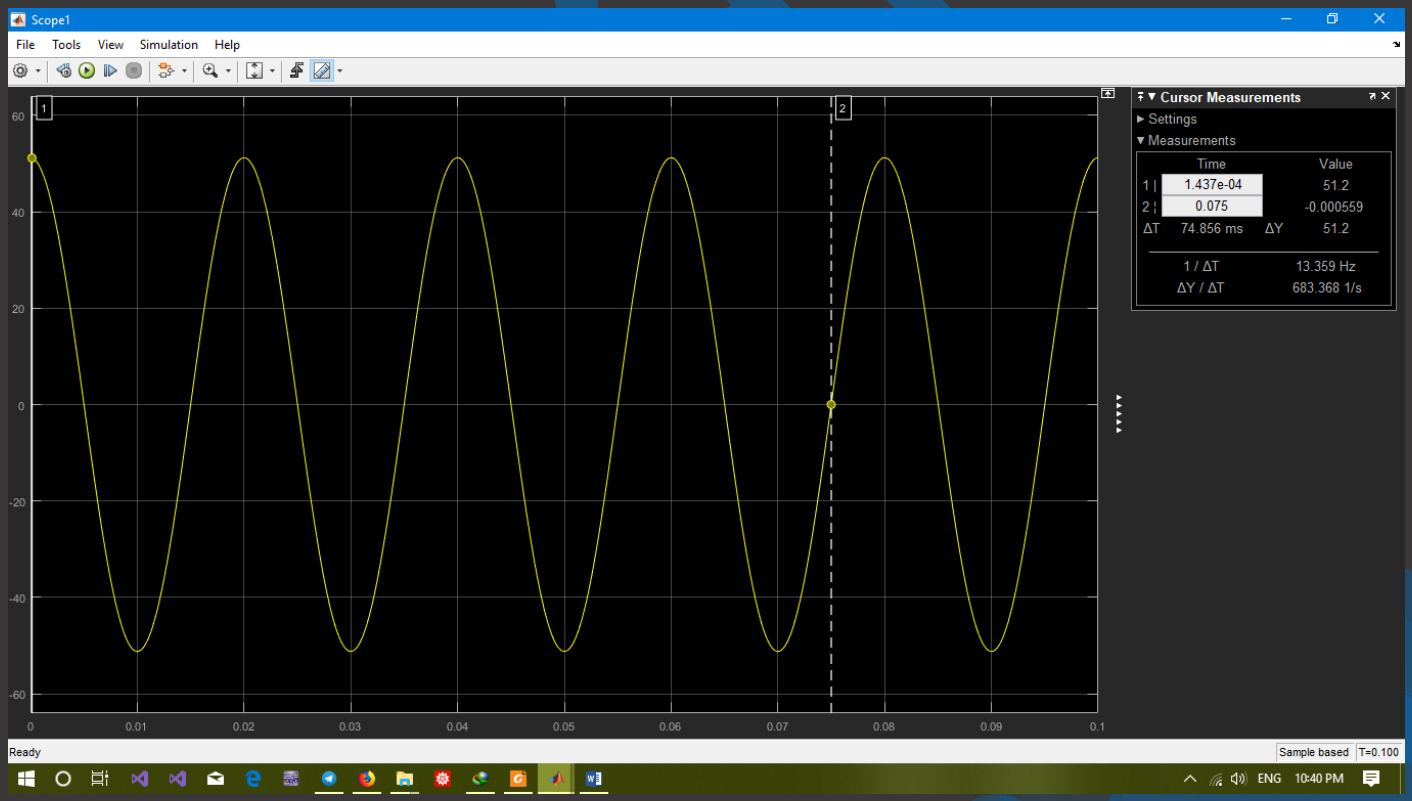
Matlab App

INPUT:



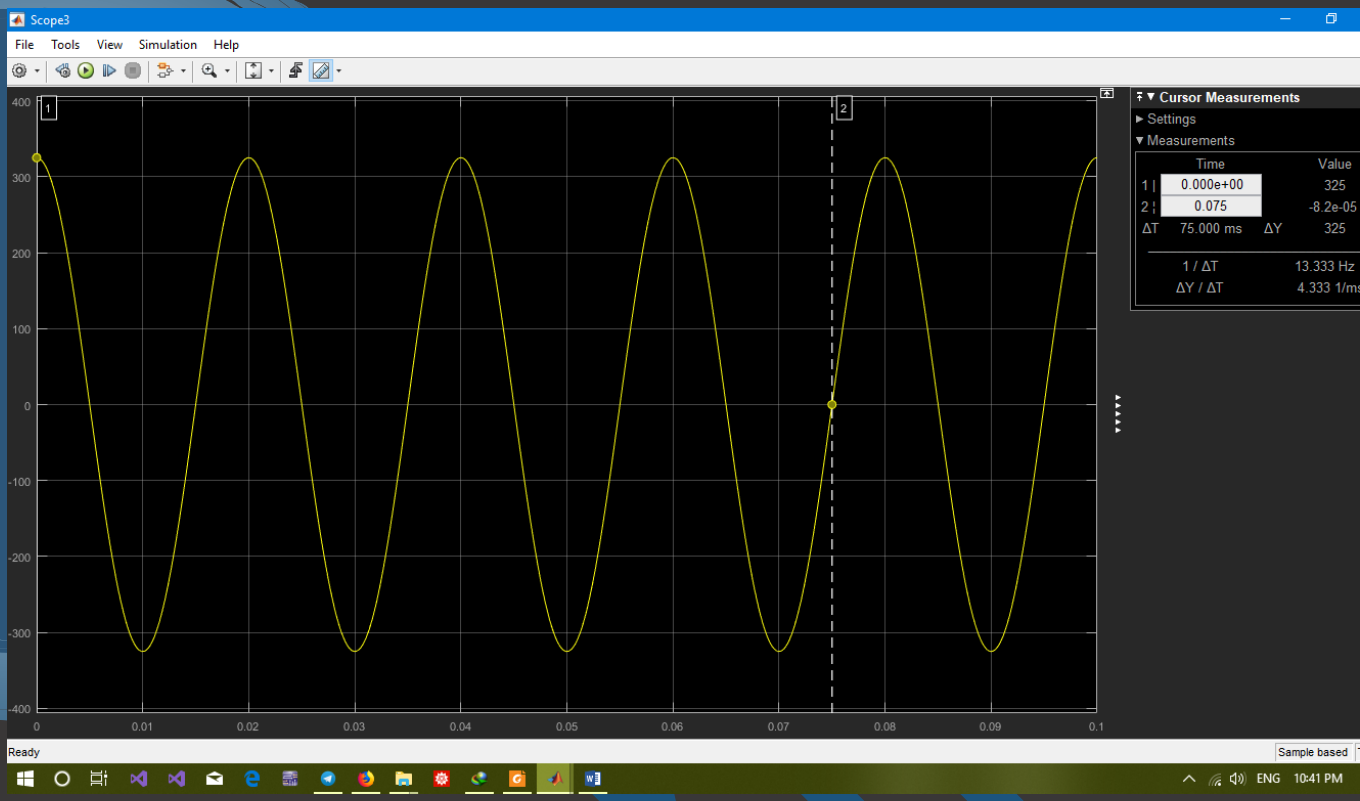
The voltage:

Output:



Matlab App

Input:



The current is not sinoside in the input by changing Rl to 10 ohm.
But the voltage remained sinoside~!!!

A=325/51.2=6.34 and it's not equal to what we considered.

7. Lack of time ……