task_1m3izw2szosswtto_with_calculation

Student Group

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exam ee1 SS2023

Exercise E1 Analyzing a Scope Plot
(written test, approx. 12 % of a 60-minute written test, SS2023)

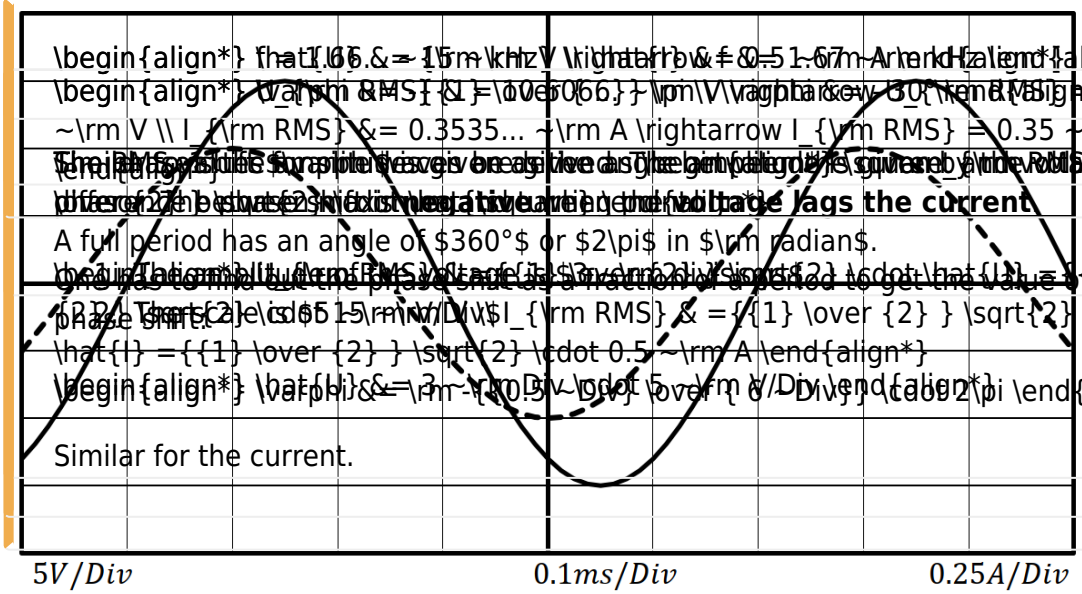
2. What is the RMS value of the voltage and the current?
3. What is the phase shift between the voltage and the current (in radian and degree)?

Result

The measured current curve shall be visible as a dashed line.

The continuous line shows the voltage.

Solution



Use the correct symbols and units in your answers!

1. Calculate the frequency f of the periodic signals.

Solution

Frequency f is given by the period T. The period can be measured in the imagine of the scope.

1. The sine waves repeat after $6 ~\rm divisions$ (e.g. from falling turning point to falling turning point of one curve)
2. The scale is $0.1 ~\rm ms/Div$

$$\begin{aligned} f &= {{1} \over {T}} \\ T &= 6 ~\rm Div \cdot 0.1 ~ms/Div \\ \rightarrow f &= {{1} \over {6 ~\rm Div \cdot 0.1 ~ms/Div}} \end{aligned}$$