

task_jti0uzudcmg4u22t_with_calculation

Student Group

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complex impedance, exam ee1 WS2022

Exercise E1 Analyzing complex Impedances (written test, approx. 14 % of a 60-minute written test, WS2022)

2. Calculate the complex impedance Z of the circuit shown in the figure. The voltage \underline{U} and the current \underline{I} shall be given.

After analysis, the full width dimensioned complex impedance Z shall be extracted and given in phase form $Z = |Z| \cdot e^{j\varphi}$ with φ in degrees.

Solution: $Z = \frac{U}{I} = \frac{10 \text{ V}}{1 \text{ A}} = 10 \text{ } \Omega$

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The current \underline{I} and voltage \underline{U} are given. The complex impedance Z is calculated as $Z = \frac{U}{I}$. The current \underline{I} is 1 A and the voltage \underline{U} is 10 V . The complex impedance Z is $10 \text{ } \Omega$.

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