Exercise Worksheet 2

25. Oktober 2011

Exercise 1
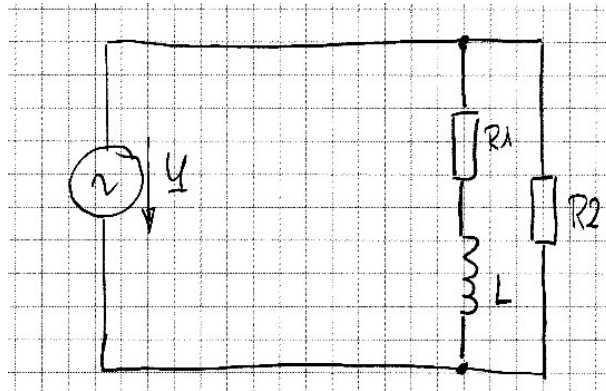

Abbildung 1: Complex Circuit

The values of the components and parameters are given:

- $R1 = 20\Omega$

- $R2 = 80\Omega$

- $L = 191mH$

- $f = 50Hz$

- $\underline{U} = 230V$

Part A

Please calculate the:

- Real Power

- Reactive Power

- Apparent Power

Part B

Please calculate the power factor

Part C

- calculate the component for power factor correction $(\cos \varphi = 1)$

- calculate the component for power factor correction $(\cos (\varphi) = 0.95)$
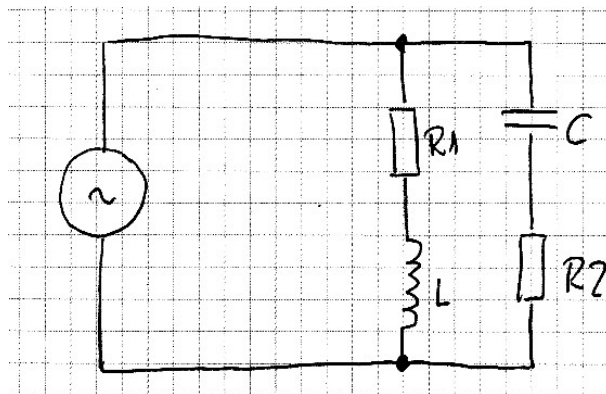
Exercise 2

Abbildung 2: Complex Circuit

The values of the components and parameters are given:

- $R1 = 40\Omega$

- $R2 = 30\Omega$

- $L = 127.32mH$

- $C = 159.15\mu F$

- $f = 50Hz$

- $\underline{U} = 230V$

Part A

Please calculate the:

- Real Power

- Reactive Power

- Apparent Power

Part B

Please calculate the power factor

Part C

- calculate the component for power factor correction $(\cos(\varphi) = 1)$

Exercise 3

The name plate of a motor gives us following data

- Rated power $P = 0.8kW$

- Rated voltage $U = 380V$

- Rated frequency $f = 50Hz$

- $\cos(\varphi) = 0.78$

Please calculate the component for power factor correction $(\cos(\varphi) = 1)$