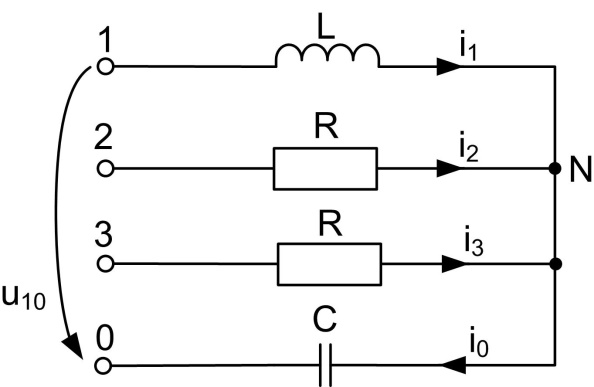
1. Knowing the circuit in the figure 1, having a symmetrical supply of voltages u10, u20, u30, with V, , , determine the currents in the phases and verify the results with power balance.

****

**Fig.** 1

The supply voltages are:

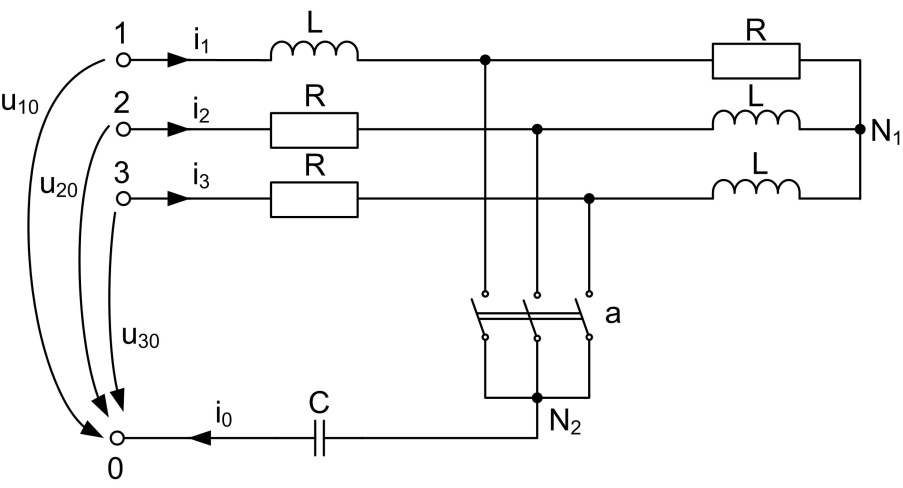
The load is unbalanced and we compute the voltage drop on the neutral conductor:

*We cand verify the current thru the neutral conductor with the relation:*

Then we transform the complex currents into instantanous ones:

Power balance

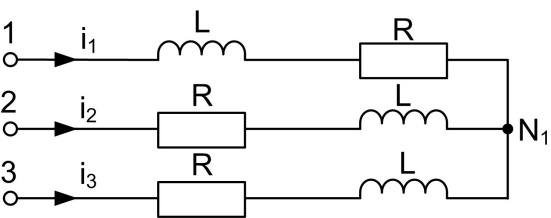
The absorbed powers are:

****

**Fig.** 2a

1. Knowing the circuit in figure 2a feeded with a symmetrical system of voltages u10, u2o, u30, with 10Ω, compute the instaneous values of the currents and verify with power balace for the switch k open and closed.

**For k open**

****

**Fig.** 2b

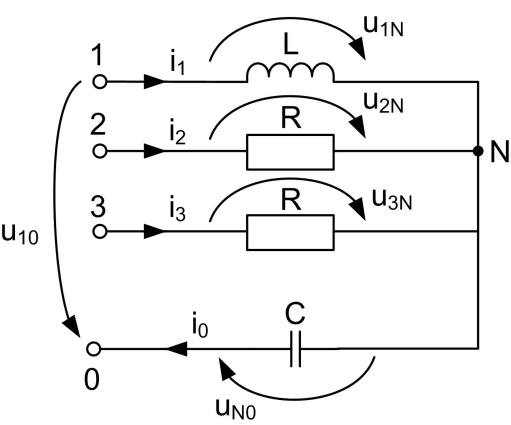
We have a balanced load. We can compute the current only for the first phase, because the system of currents is a symmetrical one too.

Because the system of the currents is a symmetrical one, the current thru the neutral conductor is zero, i0=0.

**Power balance**

Absorbed powers:

**For K closed**

****

**Fig.** 2c

We have an unbalanced load, then:

Where:

We obtain:

*We can verify:*

.

With instantaneous values:

Power balance