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## Class 7 (15.04.2025)

 The line-to-line voltage of a balanced 3-phase distribution line is U<sub>LL</sub> = 380 V rms. The load impedance per phase is <u>Z</u><sub>L</sub> = (30+j20) Ω. Calculate the line currents and the active power of the load for the following configurations of load impedance:
a wye-connected system, b) a delta-connected system.



2. In a 3-phase balanced  $\Delta$ - $\Delta$  system, the source voltage is E<sub>ph</sub> = 230 V rms. The impedance per phase <u>Z</u> = (8+j6)  $\Omega$ . Find the line currents, active power of the load and wattmeters readings.



- 3. The three-phase electric heater consists of three heating coils Y-connected (Fig). The nominal power of the heater is  $P_n = 3$  kW, and the nominal voltage  $U_n = 230$  V rms. The heater has been damaged. After its repair the length of the first coil decreased by 5% and the length of the second coil by 10%.
  - a) calculate line currents before repairing the heater,
  - b) calculate line currents, the current in the neutral line and the power of the repaired heater,
  - c) calculate line currents and the power of the repaired heater, when the neutral line is not connected.



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