1. Two identical 10 kVA, 240/415 V single phase transformers are connected in open delta (both primary and secondary sides) to supply balanced full load at 415 V and pf of 0.8 pf lagging. Determine
   a. The maximum secondary line current.
   b. The primary line current.
   c. The real power delivered by each transformer.
   d. If a similar transformer is now added to complete the delta, find the percentage increase in real power that can be supplied if the load voltage and pf remain unchanged at 415 v and 0.8 pf lagging, respectively.

   (Ans: a)24.096 A, b) 41.66 A, c) P_{total}=13856.16 W, d) 73.2%)

2. A 3-phase, 3-winding delta/delta/star, 33000/11000/400 V, 200 kVA transformer has a secondary load of 150 kVA at 0.8 pf lagging, and a tertiary load of 50 kVA at 0.9 pf lagging. The magnetizing current is 4% of rated load, the iron loss being 1 kW. Calculate the value of primary winding current when the other two windings are delivering the above loads.

   (Ans: $I_P = 2.0643\angle -65.88^0 A$)

3. A 500 kVA, 11/0.43 kV, 3-phase dela/star transformer has ohmic loss of 2.5 kW on h.v. side and 2 kW on l.v. under rated load. The total leakage reactance is 0.06 p.u. calculate:

   The ohmic values of the equivalent resistance and leakage reactance on delta side.

   (Ans: R = 6.53Ω, X= 14.52Ω, Z_{base} = 242Ω)