Tutorial 3

A transmission line with impedance of 0.6+j3 Ω per phase connects a Y-connected generator to 3 loads in parallel:

- Load 1 draws 165 kW and 117 kVAr (or 202.3 kVA and 0.81 lagging power factor)
- Load 2: delta-connected, Z = 144-j42 Ω
- Load 3: Y-connected, Z = j26 Ω

Line-to-neutral voltage at the load end is 2600 V. Find:

a) Phase current of the source
b) Line-to-line voltage at the source
c) $V_{an}(t)$ in Load 3
d) Instantaneous phase current in Load 2
e) Power absorbed by Load 3