

Electrical Engineering Department

EE 360-01

Term 071

Sequence #

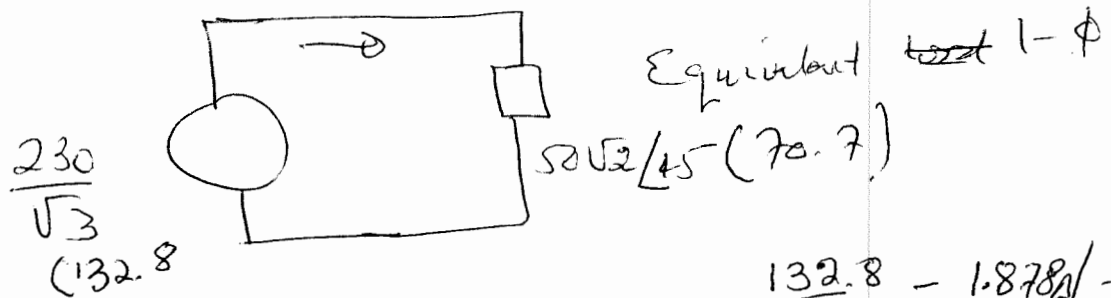
Quiz #1

Student Id #

Student name

The load on a 230-V, 60Hz, Y-connected balanced three-phase source consists of three equal Y-connected impedances of $50+j50$ Ohms. Compute:

- (1) The line current of the load.
- (2) The total load power
- (3) The power factor of the load.



$$\textcircled{i} \quad I_L = I_p = \frac{230}{\sqrt{3}(50)\sqrt{2} \angle 45}$$

$$= \frac{132.8}{70.7} = 1.878 \angle -45$$

$$\textcircled{ii} \quad P_T = \sqrt{3} V_L I_L \cos 45 = \sqrt{3} (230) (1.878) 0.707$$

$$= \underline{\underline{529W}}$$

$$\textcircled{iii} \quad pf \quad \cos(45) = 0.707$$