Balanced Y Configurations (41:59)

Given a 4 wire y configuration consisting of 3 windings each with a 120V differentials phase shifted from each other by a relative 120°, determine the line to neutral differentials and line to line differentials assuming L1 to neutral is the reference. Draw this on a phasor diagram. Determine the same phasor equivalents when L1-L2 is assumed to be the reference. Draw this on a phasor diagram.

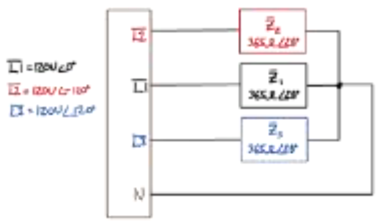
Draw a 4 wire Y configured load. Identify which voltage loads in a 4 wire Y configuration experience.

Draw a delta configured load. Identify which voltage loads in a delta configuration experience.

Identify how current flows through the lines and loads in a 4 wire Y configuration. Draw a diagram.

Identify how current flows through the lines and loads in a delta configuration. Draw a diagram.

Determine the voltage, current, and power experienced by each element in this balanced 4 wire Y configuration.



Identify how current and power relate for balanced Y configurations.

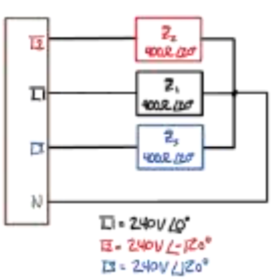
Identify the method used to calculate total power for a 3 phase AC system. Identify a shortcut for balanced configurations. Calculate total power for the above system.

Calculate current through the neutral line in the above example. Identify a shortcut method of calculating current in the neutral line for a balanced Y configuration.

Identify how a balanced 3 wire Y configuration differs from a balanced 4 wire Y configuration.

Identify a simple analysis strategy for the analysis of balanced 4 wire Y and 3 wire Y configurations.

Given this balanced load determine voltage, current, apparent, real, and reactive power delivered to each load impedance as well as total apparent, real, and reactive power.



ERROR at 39:30 S_{TOTAL} = 432VA∠20°