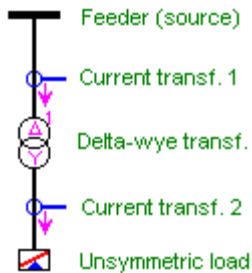


Question: What are the primary currents of a delta-wye transformer, when the secondary currents are given?

Construct the diagram



Enter feeder parameters:

138 kV with phase shift $\phi = 30^\circ$, and zero impedances.

V _{pp}	138e3
$\phi(^{\circ})$	30
R1	0
X1	0
R0	0
X0	0

Enter transformer parameters. Only primary and secondary voltages needed, because ideal transformer assumed (see below)

	A, V, Ohm
V1	138e3
V2	13.8e3
X	1
R	0.1
k _v	1

Enter the parameters of the unsymmetric load: Nominal voltage (13.8kV), currents and power factors [$\cos(\phi)$]. (Enter the voltage first!)

But NOTE, the names of the phases a, b, c must be reassigned, so that the (lagging) power factors correspond to the given phase angles. Thus
a \rightarrow b, b \rightarrow c, c \rightarrow a

In addition, note that the power factors are calculated from the phase differences between the currents and the phase voltages. For the new phases:

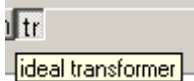
phase a: $\cos(\phi_a) = \cos(360 - 316.2) = 0.72176$

phase b: $\cos(\phi_b) = \cos(240 - 180.8) = 0.51204$

phase c: $\cos(\phi_c) = \cos(120 - 6.4) = -0.40035$

<input checked="" type="radio"/> cos(0)	<input type="radio"/> S, P
<input type="radio"/> Q, cos(0)	<input type="radio"/> S, Q
current A	1.4386e3
power factor	0.72176
current B	11.392e3
power factor	0.51203
current C	10.4111e3
power factor	-0.40035

Define "ideal transformer" by pressing down the ideal transformer button.



Solve the network by pressing the $Y v = i$ button



The results can be displayed as phasors. Note again the new names of the phases.

