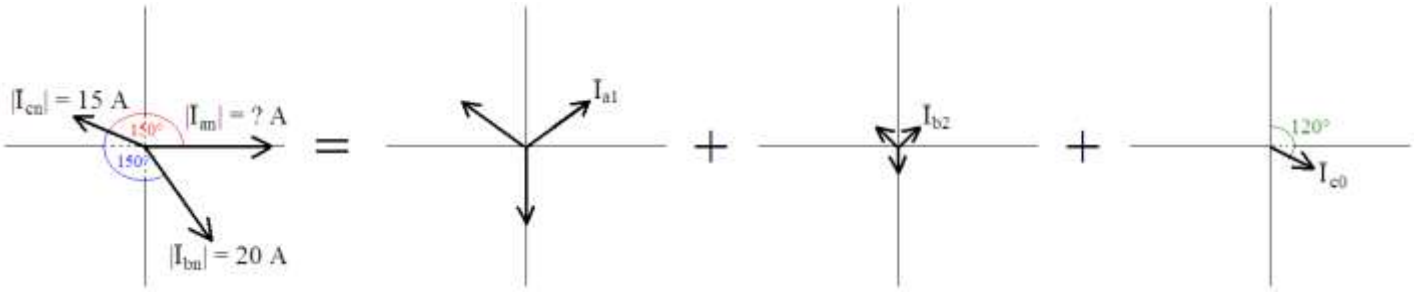
Example: Calculate $|I_{an}|$, when it is known that $|I_{b2}| = 5$ A. Gather all remaining info from the picture below.



Calculation:

$$\begin{bmatrix} I_{an}\angle 0° \\ 20\angle -60° \\ 15\angle 150° \end{bmatrix} = \begin{bmatrix} 1 & 1 & 1 \\ a^2 & a & 1 \\ a & a^2 & 1 \end{bmatrix} \begin{bmatrix} I_{a1}\angle 30° \\ 5\angle -90° \\ I_{a0}\angle -30° \end{bmatrix}$$

Last two equations can be re-written:

$$20\angle -60° = a^2 I_{a1}\angle 30° + a5\angle -90° + I_{a0}\angle -30°$$
$$15\angle 150° = aI_{a1}\angle 30° + a^2 5\angle -90° + I_{a0}\angle -30°$$

When multiplying the second equation by "(-1)" and doing the sum of both equations, the I_{a0} is cancelled and we get:

$$I_{a1} = \frac{20\angle -60° - 15\angle 150° + \left(a^2 - a\right)5\angle -90°}{\left(a^2 - a\right)\angle 30°} = 16.547 \text{ A}$$

By putting this value into first of the two equations above, we get:

$$I_{a0} = \frac{20\angle -60° - a5\angle -90° - a^2 I_{a1}\angle 30°}{\angle -30°} = 6.547 \text{ A}$$

By putting both these values into the first of all three equations above, we get the final magnitude of phasor I_{an}:

$$I_{an} = I_{a1}\angle 30° + 5\angle -90° + I_{a0}\angle -30° = 20 \text{ A}$$