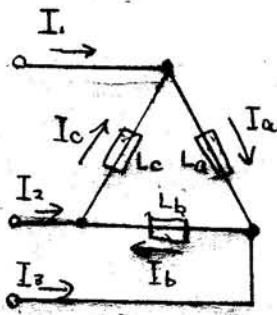


非对称三相负荷 (不平衡负荷)

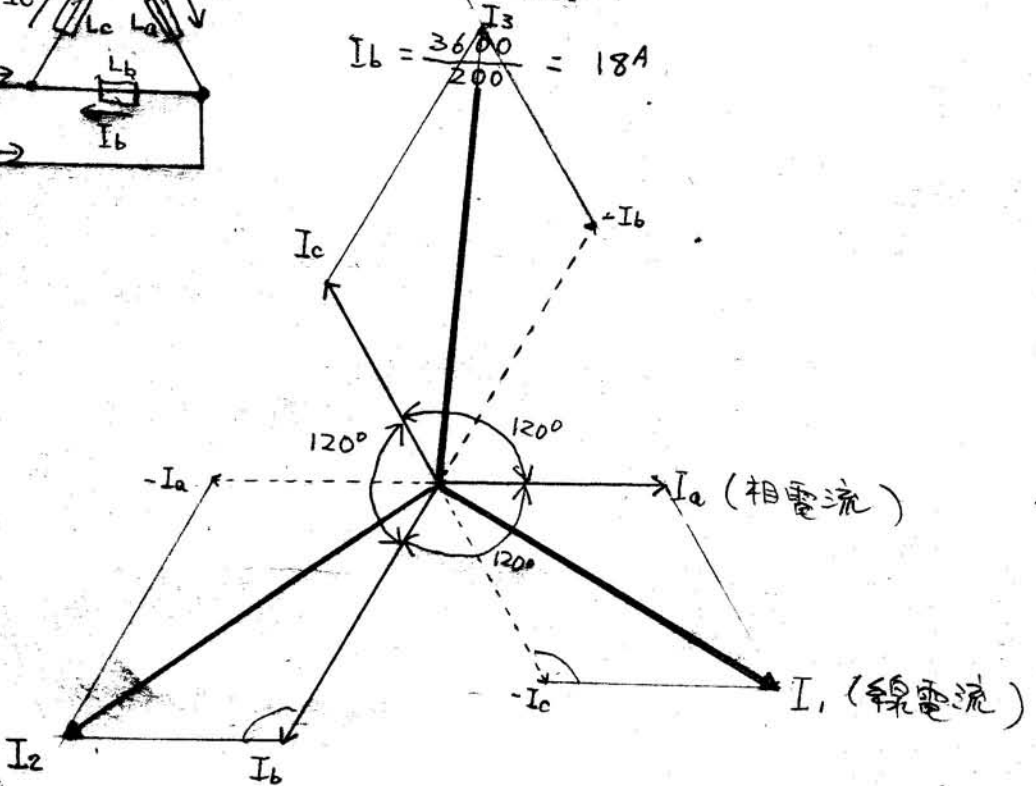
(1)

$$L_a = L_c = 2.7 \text{ kW} \quad L_b = 3.6 \text{ kW} \quad \text{と} \text{ 訂} \text{ 定}$$



$$I_a = I_c = \frac{2700 \text{ W}}{200 \text{ V}} = 13.5 \text{ A}$$

$$I_b = \frac{3600}{200} = 18 \text{ A}$$



$$I_a = I_c \text{ より } I_1 = \sqrt{3} I_a = 23.38 \text{ A}$$

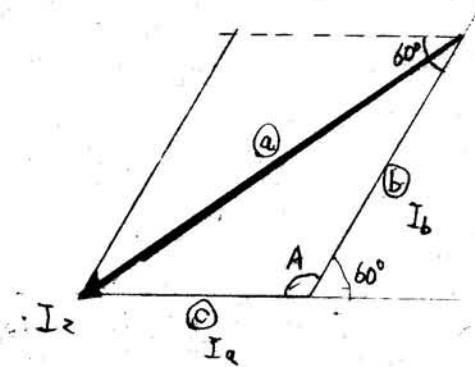
$$\text{ベクトル図より } I_2 = I_3$$

第2余弦公式より

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$\cos A = \cos 120^\circ = -0.5$$

$$a = I_2 \quad b = I_b \quad c = I_a \quad \text{と} \text{ 訂} \text{ 定}$$

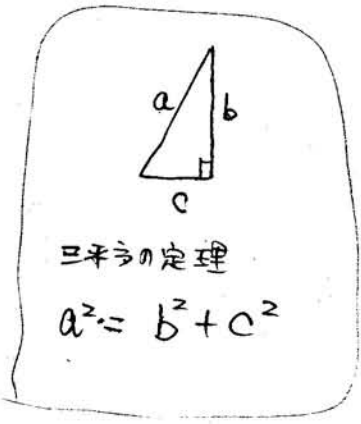
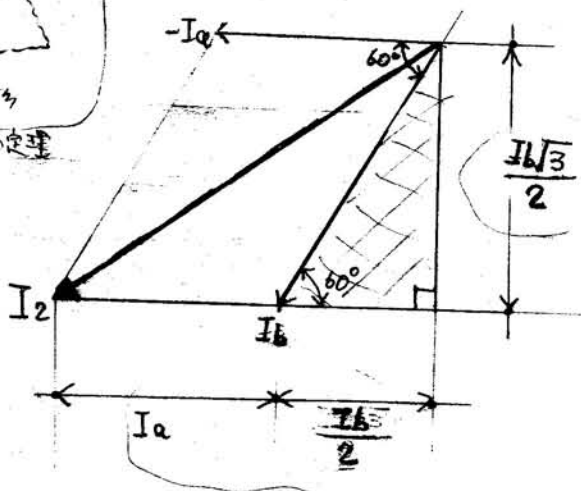
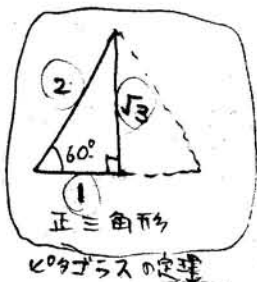


$$I_2 = \sqrt{I_b^2 + I_a^2 + (I_b \cdot I_a)}$$

$$I_2 = \sqrt{18^2 + 13.5^2 + 18 \times 13.5} = \sqrt{324 + 182.25 + 243} = 27.37 \text{ A}$$

別解

②



$$I_2 = \sqrt{\left(I_1 + \frac{I_1}{2}\right)^2 + \left(\frac{I_1\sqrt{3}}{2}\right)^2}$$

$I_1 = 13.5A$ $I_2 = 18A$ とする。

$$I_2 = \sqrt{(13.5 + 9)^2 + \left(\frac{18\sqrt{3}}{2}\right)^2}$$

$$= \sqrt{225^2 + 15.588459^2}$$

$$= \sqrt{506.25 + 242.9999}$$

$$= \sqrt{749.249}$$

$$= 27.37A$$