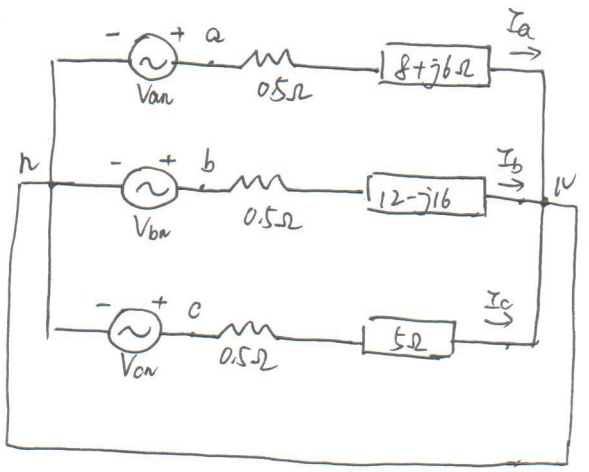
9.8



$$\dot{I}_a = \frac{120\angle 0^\circ}{8.5+j6} = \frac{4080}{433} - j\frac{2880}{433}\ A$$

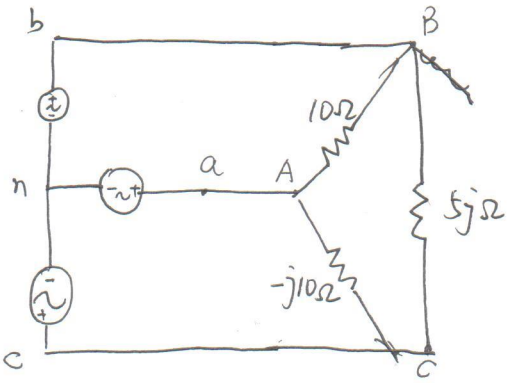
$$\dot{I}_b = \frac{120\angle -120^\circ}{12.5-j16} = 2.214 - j5.498\ A$$

$$\dot{I}_c = \frac{120\angle 120^\circ}{5.5} = -\frac{120}{11} + j18.898\ A$$

$$\dot{I}_{nN} = -(\dot{I}_a + \dot{I}_b + \dot{I}_c)$$

$$= -0.728 - 6.764j = 6.8\angle 83.86^\circ\ A.$$

9.13



$$\dot{I}_{AB} = \frac{120\angle 0^\circ - 120\angle -120^\circ}{10} = 12\sqrt{3}\angle 30^\circ\ A$$

$$\dot{I}_{AC} = \frac{120\angle 0^\circ - 120\angle -240^\circ}{-10j} = 12\sqrt{3}\angle 60^\circ\ A$$

$$\dot{I}_{BC} = \frac{120\angle -120^\circ - 120\angle 120^\circ}{5j} = -24\sqrt{3}\ A$$

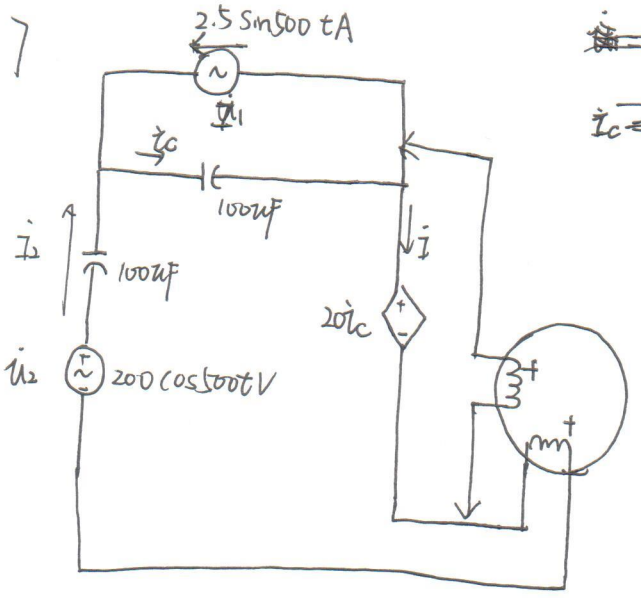
$$\dot{I}_{aA} = \dot{I}_{AB} + \dot{I}_{AC} = 60.83\angle 45^\circ\ A.\ rms$$

$$\dot{I}_{bB} = -\dot{I}_{AB} + \dot{I}_{BC} = 60.47\angle -170.1^\circ\ A\ rms$$

$$\dot{I}_{cC} = (-\dot{I}_{AC}) + (-\dot{I}_{BC})$$

$$= 36.00\angle -30^\circ\ A\ rms$$

9.17



~~$\dot{I}_{s1} = 2.5\angle -90^\circ$ A~~ ~~$\dot{U}_{s2} = 200\angle 0^\circ$ V~~

~~$\dot{I}_C = \frac{2.5\angle 90^\circ}{j\cdot 500\cdot 100\cdot 10^{-6}}$~~

$$\dot{U}_{s2} = 200\angle 0^\circ\ V$$

$$\dot{I}_1 = 2.5\angle -90^\circ A$$

$$\dot{I}_1 + \dot{I}_2 = \dot{I}_C \qquad \dot{I}_2 = \dot{I}_C + 2.5j$$

$$200\angle 0^\circ = \frac{\dot{I}_2}{j\cdot 500\cdot 100\cdot 10^{-6}} + \frac{\dot{I}_C}{j\,500\cdot 100\cdot 10^{-6}} + 20\dot{I}_C$$

$$200\angle 0^\circ = -j20(\dot{I}_2 + \dot{I}_C) + 20\dot{I}_C$$

$$\dot{U} = 20\dot{I}_C = 30 + 60j\ V \qquad 10 = 2\dot{I}_C j + 2.5 + \dot{I}_C \qquad \dot{I}_C = \frac{3}{2} + 5j\ A.$$

$$\dot{I} = \frac{3}{2} + 3j + 2.5j$$

$$= \frac{3}{2} + \frac{11}{2}j$$

$$P = |\dot{U}||\dot{I}|\cos\varphi$$

$$= \mathrm{Re}[\dot{U}(-\dot{I})^*] = -375\ W$$