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① $X_L = 2\pi f L \angle 90^\circ = 120\pi \cdot 53 \cdot 10^{-3} \angle 90^\circ = \boxed{200\angle 90^\circ \Omega}$

$X_C = \frac{1}{2\pi f C} \angle -90^\circ = \frac{1}{120\pi \cdot 8 \cdot 10^{-6}} \angle -90^\circ = \boxed{204\angle -90^\circ \Omega}$

$R = 50\angle 0^\circ \Omega$ $\quad I_R = \frac{V}{R} = \frac{100\angle 0^\circ}{50\angle 0^\circ} = \underline{2\angle 0^\circ A}$

$I_L = \frac{V}{X_L} = \frac{100\angle 0^\circ}{200\angle 90^\circ} = \underline{0{,}5\angle -90^\circ A}$ $\quad I_C = \frac{V}{X_C} = \frac{100\angle 0^\circ}{204\angle -90^\circ} = \underline{0{,}5\angle 90^\circ A}$

$P_L = VI_L = 50\angle -90^\circ VAR$ $\quad P_C = VI_C = 50\angle 90^\circ VAR$

$P_R = VI_R = 200\angle 0^\circ VA$

$|P_L| = |P_C| \Rightarrow$ wattímetro "enxerga" apenas P_R.

(2) a) $V_{linha} = V_{fas}\sqrt{3} = \frac{V_p\sqrt{3}}{\sqrt{3}} = 257\,V$

$V_{AB} = 257\angle 30^\circ \quad V_{BC} = 257\angle -90^\circ \quad V_{CA} = 257\angle 150^\circ$

b) $\bar{I}_A = \frac{\bar{V}_A}{Z_A} = \frac{148\angle 0^\circ}{4\angle 13^\circ} = 37\angle -13^\circ A$

$\bar{I}_B = \frac{\bar{V}_B}{Z_B} = \frac{148\angle -120^\circ}{5\angle 21^\circ} = 30\angle -141^\circ A$

$\bar{I}_C = \frac{\bar{V}_C}{Z_C} = \frac{148\angle 120}{3\angle 27^\circ} = 49\angle 93\,A$

$\bar{I}_A = 37\angle -13^\circ A \quad \bar{I}_C = 49\angle 93^\circ A$

$\bar{I}_B = 30\angle -141^\circ A$

c) $\sum \bar{I}_n = 0 \Rightarrow \bar{I}_A + \bar{I}_B + \bar{I}_C + \bar{I}_N = 0$

$37\angle -13^\circ + 30\angle -141^\circ + 49\angle 93^\circ + \bar{I}_N = 0$

$\bar{I}_N = 24\angle 296^\circ A$