

(23)

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$$1-) 3 a) \quad V_{rms} = \frac{V_{max}}{\sqrt{2}} = \frac{140}{\sqrt{2}} \Rightarrow \boxed{V_{rms} = 99 V}$$

$$6 b) \quad Z = \sqrt{R^2 + (X_L - X_C)^2}, \quad X_L = \omega L, \quad X_C = \frac{1}{\omega C}, \quad \omega = 500$$

$$Z = \sqrt{1000^2 + \left(500 \cdot 1 - \frac{1}{500 \cdot 10^{-3}}\right)^2}$$

$$\boxed{Z = 1117 V}$$

$$6 c) \quad f = \frac{1}{2\pi\sqrt{LC}} = \frac{1}{2\pi \cdot \sqrt{1 \cdot 10^{-3}}}$$

$$\boxed{f = 5.03 \text{ Hz}}$$

$$8 2-) \quad \frac{V_1}{N_1} = \frac{V_2}{N_2} \Rightarrow V_2 = \frac{N_2}{N_1} V_1$$

$$N_1 = 200, \quad N_2 = 50$$

$$V_1 = 440, \quad V_2 = ?$$

$$V_2 = \frac{50}{200} \cdot 440$$

$$\boxed{V_2 = 110 V}$$