Assignment

12.7 - 1

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Question

A 100 Ω resistor is connected to $220V$, $50Hz$ AC supply.
(1) What is the rms value of current in the circuit?
(2) What is the net power consumed over a full cycle?

Solution

1)

$$\begin{aligned} I_{rms} &= \frac{V_{rms}}{R} \\ &= \frac{220V}{100\Omega} \\ &= 2.2V \end{aligned}$$

Symbol	Value	Description
V_{rms}	Volts	rms value of voltage
I_{rms}	$\frac{V_{rms}}{R}$	rms value of current
P_{avg}	$V_{rms}.I_{rms}$	Average power consumed per cycle

TABLE 0
Variable description

ncert-physics/12/8/6/figs/Figure_1.png

Fig. 0. $y(t) = \cos\left(2\pi \times 10^9 t\right)$