Answer on question # 51521, Physics, Electromagnetism

Question A voltmeter connected across a 60Hz ac source reads 240v. write down the expression of the instantaneous voltage as a function of time. a)240sin339.4t b)339.4sin377t c)377cos339.4t d)240cos229.4t

Solution Instantaneous voltage is

$$V(t) = \sqrt{2}V_0 \sin 2\pi wt = \sqrt{2} \cdot 240 \sin(2 \cdot 3.14 \cdot 60t) = 339.4sin377t$$

The answer is b.