An oil drop of radius 2mm with density $3\text{g cm}^{-3}$ is held stationary under a constant $E = 3.55 \times 10^5 \text{V m}^{-1}$ in the milikan’s drop experiment. What is the number of excess $e^-$ that oil drop will possess ($g = 9.81$)

Ans. $(N = 61.60 \times 10^{14})$

An AC voltage rating 240V, 50Hz. Find the time to change current from max. value to rms value

A. 2.5S

B. 2.5 ms

C. 0.25 ms

D. 25 ms

Ans. B
A bullet of mass 0.1kg moves with velocity 10 m/s. It strikes a block and comes to rest after travelling 0.5m inside block. Find retardation of bullet.

Ans. \( a = -100 \text{ m/s}^2 \)

Radius of orbit of a satellite is R and \( T \) is time period. Find \( T^1 \), when orbit radius increase to 9R.

Ans. \( T^1 = 27T \)
A swimmer swims with a speed of 10 m/s at angle of 120° from direction of river flow. Find velocity of river flow such that swimmer reach exactly opposite point of bank.

\[ x \text{ m/s} \]

\[ 10 \text{ m/s} \]

\[ 120° \]

Ans. 5 m/s

Find voltage across 10Ω

\[ \text{Ans. } 28.8 \text{V} \]
Angular velocity of a ring is $\omega$. If we put two masses each of mass $m$ at the diametrically opposite points then the resultant angular velocity. (Mass of rings is $m$).

Ans. $\left(\omega' = \frac{\omega}{3}\right)$

An AC voltage rating 240V, 50Hz. Find the time to change current from max. value to rms value

A. 2.5S  
B. 2.5 ms  
C. 0.25 ms  
D. 25 ms  

Ans. B
Find voltage across 10Ω

Ans. 28.8V