Fundamentals of Electrical Circuits

(Problems)

Introductory Concept of Electrical Circuits

Electric Current

1. A hair dryer draws a current of 3A. If it is switched on for 5 minutes,

a. How much charge, and

b. How many electrons have passed through it?

Given:

$Q = \ ?$

$t = 5min \times 60 = 300sec$

$I = 3A$

Solution:

a. $Q = I \times t$

$Q = 3A \times 300sec$

$Q = 900C$ ***ANS***

b. Charge of 1 electron = $1.6 \times 10^{-19}C$

No. of electrons = $\frac{900C}{1.6\times10^{-19}C}$

No. of electrons = 5.625×10^{21} ***ANS***