Answer on Question 61747, Physics, Other

Question:

What is the current in milliamperes produced by the solar cells of a pocket calculator through which $4\ C$ of charge passes in $4\ h$?

Solution:

By the definition, the current is the rate at which charge flows past a point on a electric circuit:

$$I = \frac{\Delta Q}{\Delta t},$$

here, ΔQ is the quantity of charge passing through the cross section of the wire in a time Δt.

Therefore, we get:

$$I = \frac{\Delta Q}{\Delta t} = \frac{4\ C}{4\ h} \cdot \left(\frac{1\ h}{3600\ s}\right) = 2.78 \cdot 10^{-4}\ A = 0.278\ mA.$$

Answer:

$I = 0.278\ mA.$