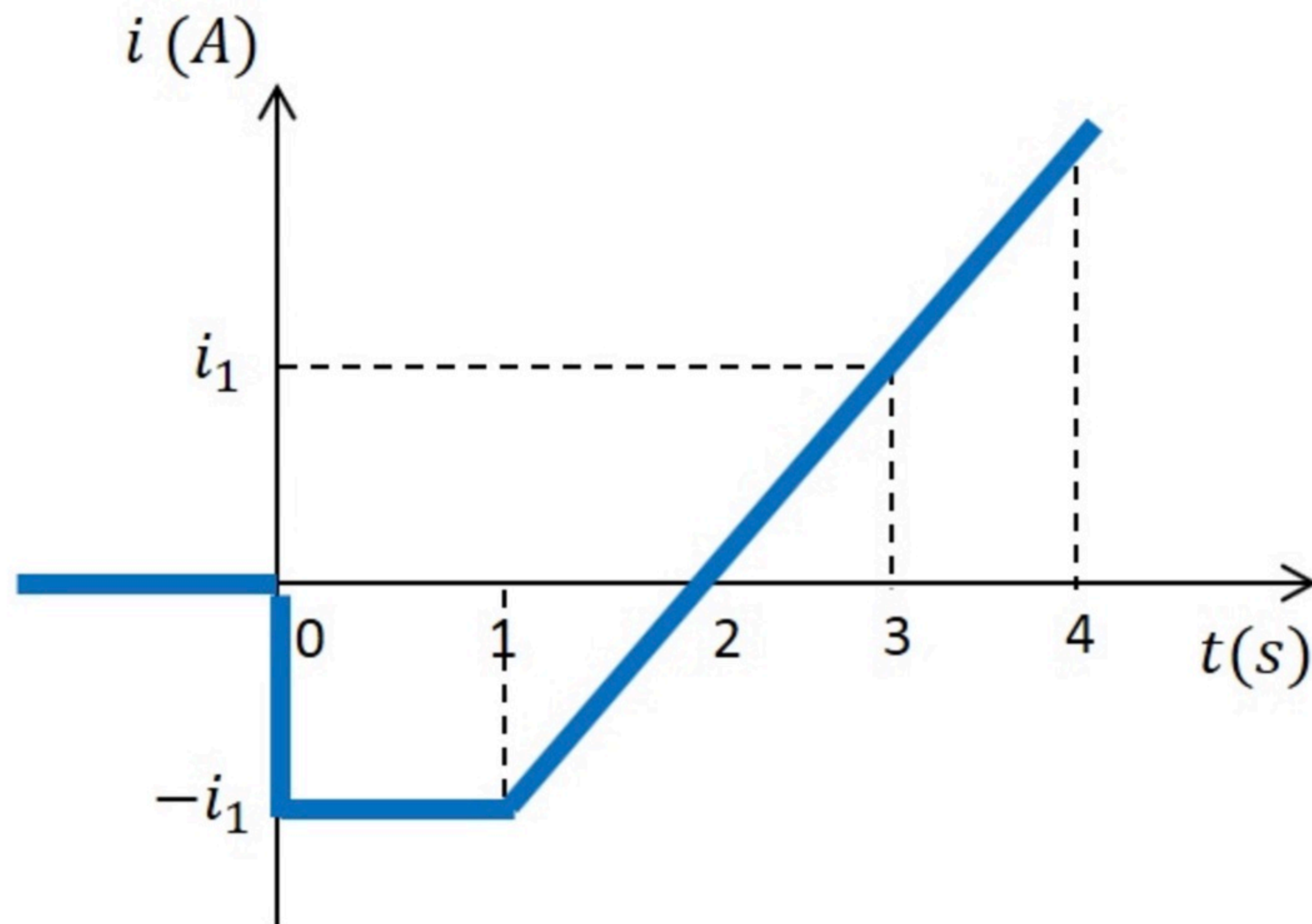


Basic concepts 001

Problem has been graded.

The curve shows the current flowing through a circuit element. Find the net charge q that has entered the element from $t = 0$ s to $t = 4$ s.



Given Variables:

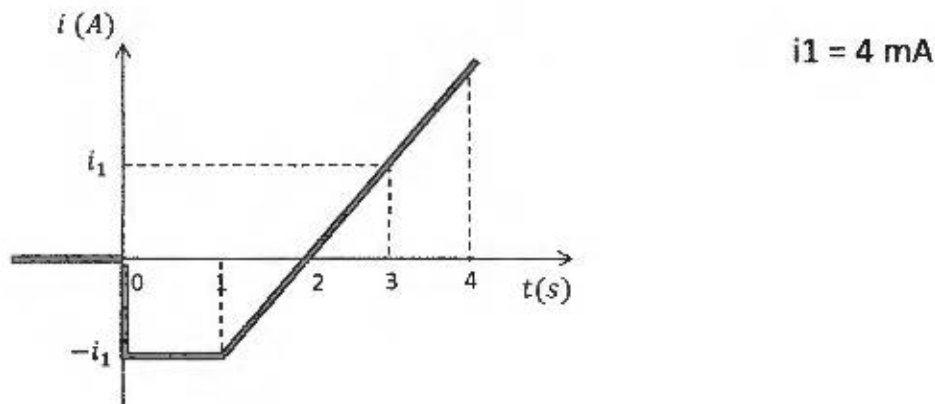
$i_1 : 8$ mA

Calculate the following:

q (C) :

Hint: Check the units.

The curve shows the current flowing through a circuit element. Find the net charge q that has entered the element from $t = 0$ s to $t = 4$ s.



$$\begin{aligned}
 q &= \int_0^4 i(t) dt = \left(-i_1 \cdot 1 \right) + \left(\frac{-i_1 \cdot 1}{2} \right) \\
 &\quad + \left(\frac{i_1 \cdot 1}{2} \right) + \left(i_1 \cdot 1 + \frac{i_1 \cdot 1}{2} \right) \\
 &= \frac{-i_1}{2} \\
 &= \frac{4 \cdot 10^{-3}}{2}
 \end{aligned}$$

$q = 0.002 \text{ C}$