

1.9 The charge entering an element is shown in Fig. P1.9.

Find the current in the element in the time interval

$0 \leq t \leq 0.5$ s. [Hint: The equation for $q(t)$ is

$q(t) = 1 + (1/0.5)t$, $t \geq 0$.]

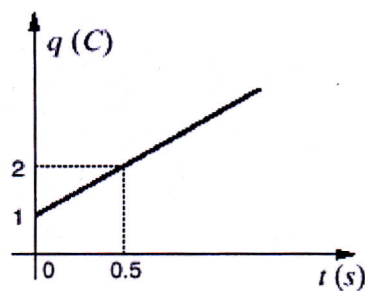


Figure P1.9

SOLUTION:

$$q(t) = 1 + 2t, \quad 0 \leq t \leq 0.5 \text{ s}$$

$$i(t) = \frac{dq(t)}{dt}$$

$$i(t) = 2 \text{ A}, \quad 0 \leq t \leq 0.5 \text{ s}$$