

1.2 Determine the current flowing through an element if the charge flow is given by

(a) $q(t) = (3) \text{ mC}$

(b) $q(t) = (4t^2 + 20t - 4) \text{ C}$

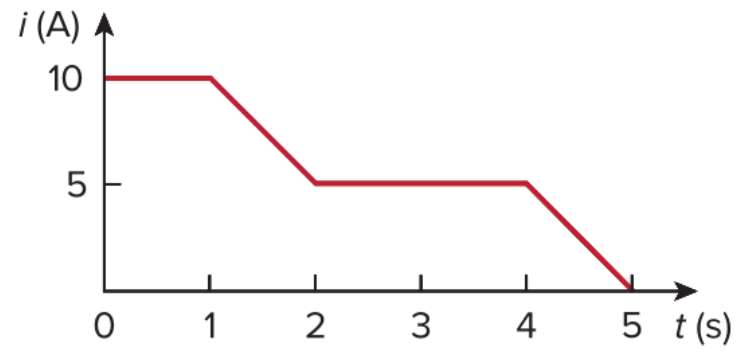
(c) $q(t) = (15e^{-3t} - 2e^{-18t}) \text{ nC}$

(d) $q(t) = 5t^2(3t^3 + 4) \text{ pC}$

(e) $q(t) = 2e^{-3t} \sin(20\pi t) \text{ }\mu\text{C}$

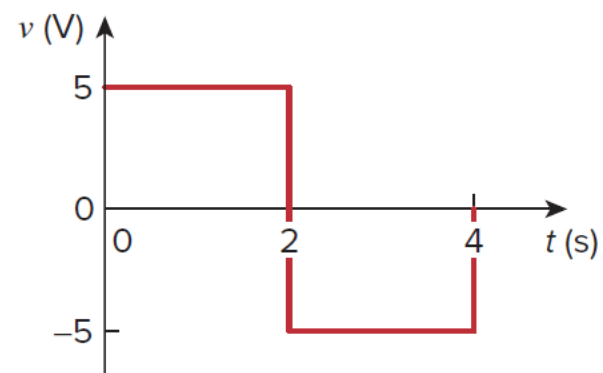
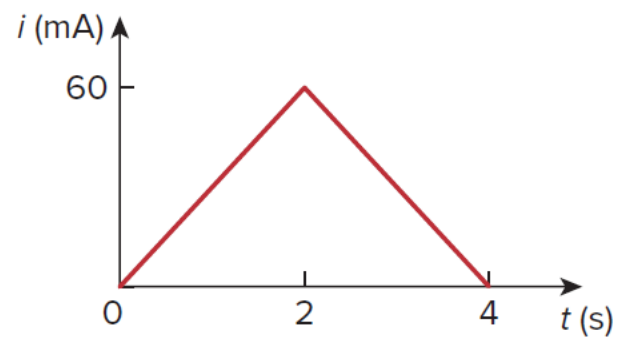
1.9 The current through an element is shown in Fig. 1.26. Determine the total charge that passed through the element at:

- (a) $t = 1 \text{ s}$ (b) $t = 3 \text{ s}$ (c) $t = 5 \text{ s}$

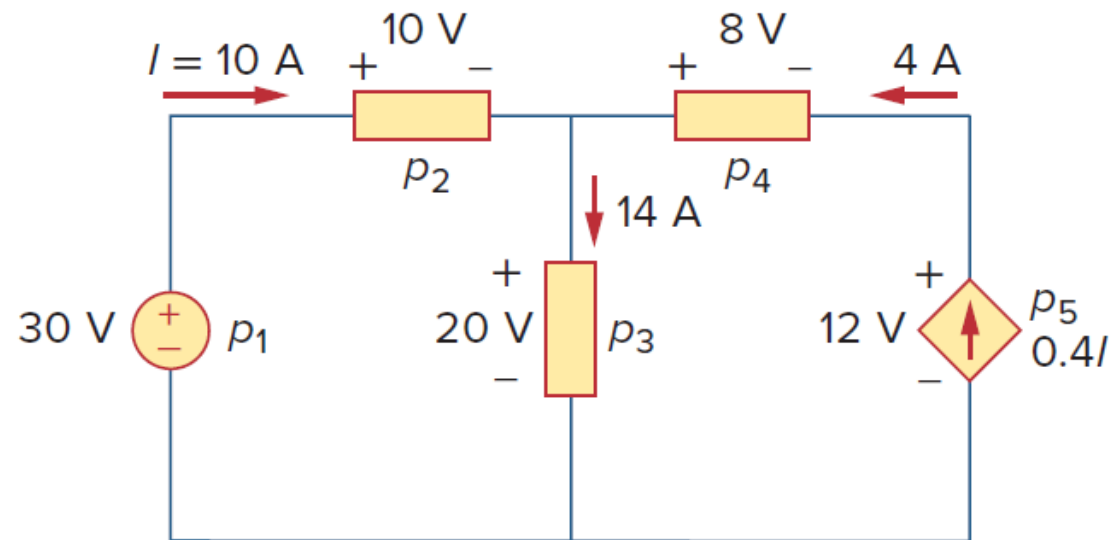


1.16 Figure 1.27 shows the current through and the voltage across an element.

- (a) Sketch the power delivered to the element for $t > 0$.
- (b) Find the total energy absorbed by the element for the period of $0 < t < 4\text{s}$.



1.18 Find the power absorbed by each of the elements in Fig. 1.29.



1.38 How much energy does a 10-hp motor deliver in 30 minutes? Assume that 1 horsepower = 746 W.