

A heater draws 7.5A when connected to a 90V battery.

- a) What is its resistance?
  - b) How much charge passes through it in 15 minutes?
- 

SOLUTION

(a) Use Ohm's law:

$$V = IR \longrightarrow R = \frac{V}{I} = \frac{90\text{V}}{7.5\text{A}} = 12\Omega$$

(b) 15 minutes = (15)(60) = 900 seconds. Current is the rate charge moves through the circuit, thus

$$Q = It = 7.5\text{C/s}(900\text{s}) = 6750\text{C}$$