

29 A wire made of material with resistivity  $\rho$  has length  $l$  and area of cross-section  $A$ . It is connected to an electrical supply and has a potential difference  $V$  across it.

What is the energy supplied to the wire in time  $t$ ?

A  $\frac{V^2 t A}{\rho l}$

B  $\frac{V t A}{\rho l}$

C  $\frac{V \rho l t}{A^2}$

D  $\frac{V^2 \rho l t}{A}$