

22 A 240 V electric heater uses a current of 4.00 A. It is to be rewound with resistance wire of diameter 4.00×10^{-4} m.

At working temperature, the resistance wire has resistivity $1.10 \times 10^{-6} \Omega \text{m}$.

What length of wire is required?

A 2.18 m

B 6.85 m

C 10.8 m

D 27.4 m