31 A nichrome wire has a resistance of 15 Ω and a diameter of 3.0 mm. The number density of the free electrons in nichrome is $9.0 \times 10^{28}\,m^{-3}$.

A potential difference (p.d.) of 6.0 V is applied between the ends of the wire.

What is the average drift speed of the free electrons in the wire?

A $9.8 \times 10^{-7}\,m\,s^{-1}$

B $3.9 \times 10^{-6}\,m\,s^{-1}$

C $6.1 \times 10^{-6}\,m\,s^{-1}$

D $2.5 \times 10^{-5}\,m\,s^{-1}$