

- 22** When there is a current of 5.0 A in a copper wire, the average drift velocity of the free electrons is  $8.0 \times 10^{-4} \text{ m s}^{-1}$ .

What is the average drift velocity in a different copper wire that has twice the diameter and a current of 10.0 A?

**A**  $4.0 \times 10^{-4} \text{ m s}^{-1}$

**B**  $8.0 \times 10^{-4} \text{ m s}^{-1}$

**C**  $1.6 \times 10^{-3} \text{ m s}^{-1}$

**D**  $3.2 \times 10^{-3} \text{ m s}^{-1}$