

32 Two wires, X and Y, are made from the same metal.

The diameter of wire Y is twice that of wire X.

Wire X, wire Y and a battery are connected in series.

What is the ratio $\frac{\text{average drift speed of free electrons in wire X}}{\text{average drift speed of free electrons in wire Y}}$?

A $\frac{1}{4}$

B $\frac{1}{2}$

C $\frac{2}{1}$

D $\frac{4}{1}$