1.7. Connecting B to D

1.7a. The conductance can be written in terms of the ballistic conductance G_B, the mean free path l, the length L and the cross-sectional area A as

(a) $\dfrac{G_B(L + l)}{A}$

(b) $\dfrac{G_B A}{L}$

(c) $\dfrac{G_B A}{L + l}$

(d) $\dfrac{G_B A}{l}$

(e) None of the above

Explanation: The correct answer is $\dfrac{G_B l}{L + l}$

1.7b. The resistance of a ballistic conductor can be written in terms of the resistivity r, the mean free path l and cross-sectional area A as

(a) $r l / A$

(b) $r A / l$

(c) $A / r l$

(d) $r / A l$

(e) $r A l$