

Again, using the definite integral

$$\text{Net distance traveled (displacement)} = \int_a^b v(t) dt$$

$$\text{Total distance traveled} = \int_a^b |v(t)| dt$$

Volume of a solid between $x=a$ and $x=b$ having a cross-sectional area $A(x)$ at an input x is

$$\int_a^b A(x) dx$$