Consider a rope with uniform cross section.
Its density is $\rho = 1 \text{ kg/m}^3$.
Its cross section is $A = 0.1 \text{ m}^2$.

Find its linear mass density: $\mu = \frac{\text{mass}}{\text{length}} = \frac{m}{x}$ in terms of its density and the cross section.

A) $\mu = \rho A$
B) $\mu = \frac{\rho}{A}$
C) $\mu = \frac{A}{\rho}$
\[ [\mu] = \frac{M}{L} = [\rho^x A^y] = \left(\frac{M}{L^3}\right)^x (L^2)^y. \]

Equating powers of M and L leads to 1 = x and -1 = -3x + 2y.

Substituting x = 1 into the second equation gives -1 = -3 + 2y.

So, y = 1, or \( \mu = \rho A \)

Answer bf A.

01.04-02\{A\}rope 2004-3-24