The damping force on a oscillating body is proportional to its velocity. The constant of proportionally has the dimensions of 1)[mt-1] 2)[mlt-2] 3)[mlt-3] 4)[m0l0t0]

Solution

The dimension of force is

$$[F] = \left[\frac{ml}{t^2}\right]$$

The damping force is $F_d = \alpha v$, $[v] = \left[\frac{l}{t}\right]$

From hence, answer is 1) $\alpha = \frac{m}{t}$