

## Problem 80

Consider the equation  $y = mt + b$ , where the dimension of  $y$  is length and the dimension of  $t$  is time, and  $m$  and  $b$  are constants. What are the dimensions and SI units of (a)  $m$  and (b)  $b$ ?

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### Solution

If  $y$  is length, then the two quantities being added,  $mt$  and  $b$ , have to have dimensions of length as well. This means the dimensions of  $m$  and  $b$  are

$$[m] = \frac{\text{Length}}{\text{Time}}$$

$$[b] = \text{Length.}$$

Their SI units are

$$[m] = \frac{\text{meters}}{\text{second}}$$

$$[b] = \text{meters.}$$