

## Answer on Question#52046 - Physics - Mechanics

If  $s$  is distance and  $t$  is time, what must be the dimensions of  $a$  and  $b$  in the equation  $s = a \sin(bt)$ ?

[a]=[L]-1, [b]=[L]-1

[a]=[T]-1, [b]=[L]

[a]=[L], [b]=[T]-1

[a]=[L]2, [b]=[T]-2

### Solution:

The argument of sine should be dimensionless, so the dimensions of  $b$  should be  $T^{-1}$ . Since dimensions of  $s$  are  $L$ , the dimensions of  $b$  are also  $L$ .

Answer:  $[a] = [L], [b] = [T]^{-1}$ .