Answer on Question55209 - Physics / Mechanics — Kinematics — Dynamics - for completion

October 1, 2015

An electric fan is turning at $\nu = 3.0 rev/s$ when it is turned off, it coasts to rest in $t_1 = 18s$. Assuming the deceleration is uniform, how many revolutions did it turn through while coming to rest?

Solution

The deceleration of the fan is:

$$a = \frac{\nu}{t_1}$$

The number of revolutions turned coming to rest:

$$n = \frac{at_1^2}{2} = \frac{\nu t_1}{2} = 27 rev$$