Answer on Question #71377, Physics / Mechanics

Question   A record on a turntable is spinning and coming to rest. At t = 0
s the angular velocity of the disc is 20.0 rad/s and its angular acceleration is
constant at -5.0 rad/s/s. How long does it take to stop?

Solution   The angular acceleration α and angular velocity ν are related as

$$\nu = \nu_0 - \alpha t$$

Where ν_0 is velocity at $t = 0$. Hence, we can find time when $\nu = 0$, that is, stop
of rotation:

$$t = \frac{\nu_0}{\alpha} = \frac{20}{5} = 4\,s$$