13. We take $t = 0$ at the start of the interval and take the sense of rotation as positive. Then at the end of the $t = 4.0\,\mathrm{s}$ interval, the angular displacement is $\theta = \omega_0 t + \frac{1}{2}\alpha t^2$. We solve for the angular velocity at the start of the interval:

$$\omega_0 = \frac{\theta - \frac{1}{2}\alpha t^2}{t} = \frac{120\,\mathrm{rad} - \frac{1}{2}\left(3.0\,\mathrm{rad/s^2}\right)(4.0\,\mathrm{s})^2}{4.0\,\mathrm{s}} = 24\ \mathrm{rad/s}\ .$$

We now use $\omega = \omega_0 + \alpha t$ (Eq. 11-12) to find the time when the wheel is at rest:

$$t = -\frac{\omega_0}{\alpha} = -\frac{24\,\mathrm{rad/s}}{3.0\,\mathrm{rad/s^2}} = -8.0\ \mathrm{s}\ .$$

That is, the wheel started from rest $8.0\,\mathrm{s}$ before the start of the described $4.0\,\mathrm{s}$ interval.