The equation of motion for a damped linear pendulum is

$$\frac{d^{2}θ}{dt^{2}}+2γ\frac{dθ}{dt}+ω^{2}θ=0,$$

where $ω=\sqrt{{l}/{g}} $and $γ $are positive constants, with $l$ the length of the pendulum and $g $gravity. If$ l=1$, $g=9.81 $and $γ=\frac{1}{4} $and$ θ\left(0\right)=3$, how long does it take the pendulum swinging from rest to reach the position$ θ=0$. How long does it take to reach $θ=0 $a second time?