4-12. The 20 kg cylinder has a normally distributed angular velocity $\omega \sim N(50,5^2)$ rad/s when it is brought into contact with the ground. If $r = 0.2$ and $\theta = 30°$, find the probability that the cylinder will stop in 2 seconds. The axle through the cylinder is connected to two symmetrical links. (Only AB is shown). Neglect the weight of the links. The coefficient of kinetic friction is $\mu = 0.3$.

Solution: $\Pr\{t < 2\} = 0.51$