

44. We note that the period of revolution is $(1200 \text{ rev/min})^{-1} = 8.3 \times 10^{-4} \text{ min}$ which becomes, in SI units, $T = 0.050 \text{ s}$.

(a) The circumference is $c = 2\pi r = 2\pi(0.15) = 0.94 \text{ m}$.

(b) The speed is $v = c/T = (0.94)/(0.050) = 19 \text{ m/s}$. This is equivalent to using Eq. 4-33.

(c) The magnitude of the acceleration is $a = v^2/r = 19^2/0.15 = 2.4 \times 10^3 \text{ m/s}^2$.

(d) As noted above, $T = 50 \text{ ms}$.