

2-3 The speed of the glider as it passes through the gate is $v = d/t = 8 \text{ [cm]}/0.333 \text{ [s]} = 24 \text{ [cm/s]}$. The distance traveled from rest to the gate is 96 [cm] and the initial speed was zero. Thus we use the equation $v^2 = v_0^2 + 2 a \Delta x$. Solving for $a = v^2 / (2 \Delta x)$, we get $a = (24 \text{ [cm/s]})^2 / (2 \times 96 \text{ [cm]}) = 3.0 \text{ [cm/s}^2\text{]}$. The correct answer is (A).