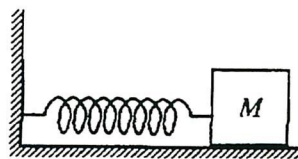


34. An object is released from rest at time $t = 0$ and falls through the air, which exerts a resistive force such that the acceleration a of the object is given by $a = g - bv$, where v is the object's speed and b is a constant. If limiting cases for large and small values of t are considered, which of the following is a possible expression for the speed of the object as an explicit function of time?

- (A) $v = g(1 - e^{-bt})/b$
 (B) $v = (ge^{bt})/b$
 (C) $v = gt - bt^2$
 (D) $v = (g + a)t/b$
 (E) $v = v_0 + gt, v_0 \neq 0$



35. An ideal massless spring is fixed to the wall at one end, as shown above. A block of mass M attached to the other end of the spring oscillates with amplitude A on a frictionless, horizontal surface. The maximum speed of the block is v_m . The force constant of the spring is

- (A) $\frac{Mg}{A}$
 (B) $\frac{Mgv_m}{2A}$
 (C) $\frac{Mv_m^2}{2A}$
 (D) $\frac{Mv_m^2}{A^2}$
 (E) $\frac{Mv_m^2}{2A^2}$