The x-axis points downward. The upper end of a vertical spring is fixed on this axis and its lower end is at the origin when it is relaxed. Then a block of mass m is attached to the lower end and released from rest at the origin. The spring constant is k and the acceleration of gravity is g. Let x be the position of the block, $V(x)$ be the potential energy of the system, and omega be the angular frequency for the simple harmonic oscillations (SHO) of the block. Which of the following statements is correct?

○ $V(x)$ can be chosen as $(kx^2)/2 + mgx$.
○ $V(x)$ can be chosen as $-(kx^2)/2 - mgx$.
◉ omega = sqrt(k/m).
○ The equilibrium position of the block is at $x = 0$.
○ The amplitude of SHO is independent of g.