73. (a) The graph makes it clear that the period is $T = 0.20$ s.

(b) Eq. 16-13 states

$$T = 2\pi\sqrt{\frac{m}{k}} \quad .$$

Thus, using the result from part (a) with $k = 200$ N/m, we obtain $m = 0.203 \approx 0.20$ kg.

(c) The graph indicates that the speed is (momentarily) zero at $t = 0$, which implies that the block is at $x_0 = \pm x_m$. From the graph we also note that the slope of the velocity curve (hence, the acceleration) is positive at $t = 0$, which implies (from $ma = -kx$) that the value of x is negative. Therefore, with $x_m = 0.20$ m, we obtain $x_0 = -0.20$ m.

(d) We note from the graph that $v = 0$ at $t = 0.10$ s, which implied $a = \pm a_m = \pm\omega^2 x_m$. Since acceleration is the instantaneous slope of the velocity graph, then (looking again at the graph) we choose the negative sign. Recalling $\omega^2 = k/m$ we obtain $a = -197 \approx -200$ m/s^2.

(e) The graph shows $v_m = 6.28$ m/s, so

$$K_m = \frac{1}{2}mv_m^2 = 4.0 \text{ J} \quad .$$