A 0.50 kg block is attached to a spring and oscillating on a frictionless, horizontal surface. When the block is 20 cm from the equilibrium point, the potential energy of the system is 8.0 J and the kinetic energy is 4.0 J. Find:

1. The period of the motion
2. The amplitude of the motion
3. The maximum speed of the block
4. The maximum acceleration of the block

* Sketch the graphs of energy vs position for the motion. Include potential energy vs position, kinetic energy vs position, and total energy vs position on the same axes but different colors.
* Sketch the graphs of energy vs time for two cycles of the motion. Assume the block begins at rest. Include potential energy vs time, kinetic energy vs time, and total energy vs position on the same axes but different colors.