Conservation of Energy & Transformation Practice Problems

Name:
Physics
Period:

1. What does the law of conservation of energy state?

2. In energy terms, why does a car rolling down a hill speed up?

3. a) Describe the energy transformations that take place as you swing on a swing.

b) Why do you have to keep pumping to keep swinging as high? What happens if you stop pumping?

4. Describe the energy transformations that take place as a pole-vaulter runs toward the bar, plants the pole and vaults over the bar, finally landing on the cushions on the other side.

5. You pull with 200 N of force for 0.6 m while drawing an arrow in a bow.
a) How much energy does the bow have while it is drawn? What type?

b) How fast will the arrow be moving just after it is released? [How much energy does it have? What kind? Explain.]

6. Jason has 13720 J of gravitational potential energy standing at the top of a cliff over the lake.
a) If they jump off the cliff and fall to the water below, how much kinetic energy will they have when they reach the surface of the water? Explain.

b) They come to a stop 5 m beneath the surface of the lake. How hard does the water push on them while stopping them?

c) How much energy is there after they stop? Where is it? What kind of energy is it? Explain.