

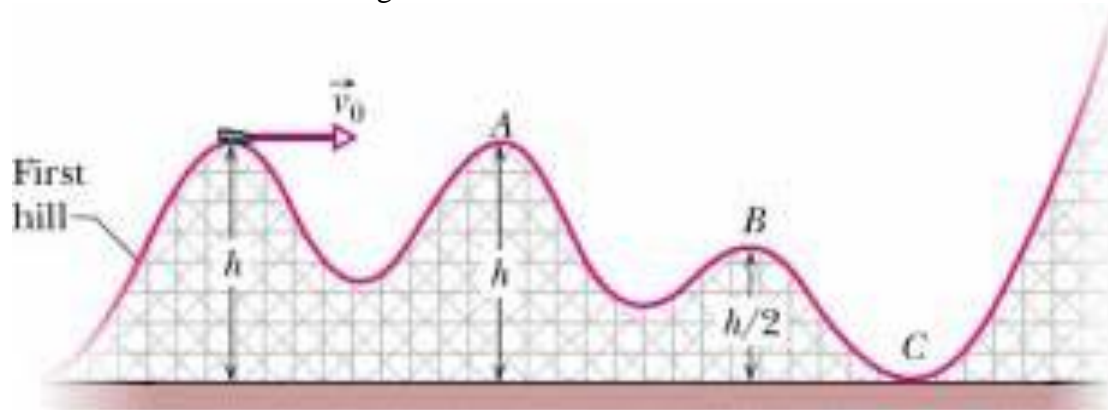
Conservation of Energy Worksheet

Name: _____

$$\mathbf{PE}_{\text{before}} + \mathbf{KE}_{\text{before}} = \mathbf{PE}_{\text{after}} + \mathbf{KE}_{\text{after}}$$

$$\mathbf{PE} = mgh \quad \mathbf{KE} = \frac{1}{2}mv^2 \quad g = 9.81 \text{ m/s}^2$$

3. A 100 kg roller coaster comes over the first hill at 2 m/sec (v_0). The height of the first hill (h) is 20 meters. See roller diagram below.



- 1) Find the total energy for the roller coaster at the initial point.
- 2) Find the *potential energy* at point A using the PE formula.
- 3) Use the *conservation of energy* to find the kinetic energy (KE) at point B.
- 4) Find the *potential energy* at point C.
- 5) Use the *conservation of energy* to find the Kinetic Energy (KE) of the roller coaster at point C.
- 6) Use the *Kinetic Energy* from C, find velocity of the roller coaster at point C.

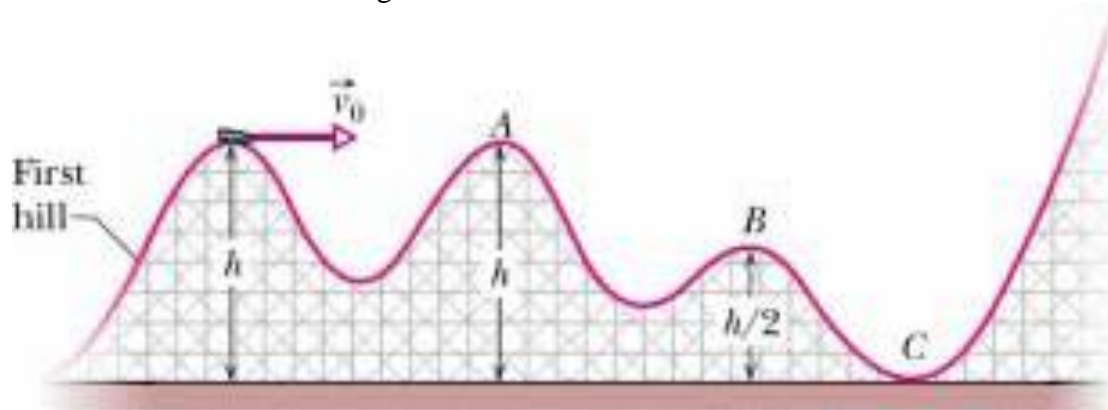
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