

Name: _____

Date: _____

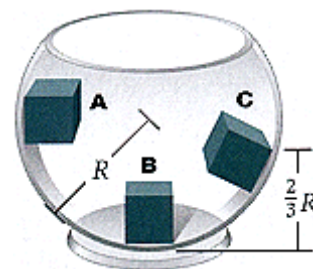
Section C D F

Mechanical Energy I

1. One of the two Olympic weightlifting events is called the “Clean and Jerk,” shown below. As of Athens 2004, the record for Clean and Jerk is 262.5 kg (578.7 pounds).
- What is the change in potential energy of this exercise if the weights are lifted 2.2 meters?
 - What would the change in potential energy be on the moon, where the acceleration of gravity is $1/6^{\text{th}}$ that of Earth’s?



2. A 185 g particle is released from rest at point **A** inside a smooth hemispherical bowl of radius 25.0 cm, as shown in the figure to the right.
- Calculate the gravitational potential energy at **A** relative to **B**.
 - Calculate the particle's kinetic energy at **B**.
 - Calculate the particle's speed at **B**.
 - Calculate the kinetic energy and potential energy at **C**.



- A child and sled with a combined mass of 40.0 kg slide down a frictionless hill. If the sled starts from rest and has a speed of 12.0 m/s at the bottom, what is the height of the hill? (*Remember that energy is conserved here*)
- Tarzan swings on a 35.0 m long vine initially inclined at an angle of 37.0° with the vertical. What is his speed at the bottom of the swing if he starts from rest?