

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Physics

Physics 8.01 TEAL

Fall Term 2004

~~In-Class Problems 22-23: Mechanical Energy~~

Section _____ Table and Group Number _____

Names _____

~~Hand in one solution per group.~~

~~We would like each group to apply the problem solving strategy with the four stages (see below) to answer the following two problems.~~

- ~~I. Understand get a conceptual grasp of the problem~~
- ~~II. Devise a Plan set up a procedure to obtain the desired solution~~
- ~~III. Carry out your plan solve the problem!~~
- ~~IV. Look Back check your solution and method of solution~~

Problem 22: *Escape Velocity and Mechanical Energy*

The asteroid Toro, discovered in 1964, has a radius of about $R = 5.0 \text{ km}$ and a mass of about $m_t = 2.0 \times 10^{15} \text{ kg}$. Let's assume that Toro is a perfectly uniform sphere. What is the escape velocity for an object of mass m on the surface of Toro? Could a person reach this speed (on Earth) by running?