

Potential/ Kinetic Energy wks # 2

- 1) Calculate the kinetic energy of an 80,000 kg airliner flying at 600 km/hr.
- 2) A bird is flying with a speed of 18 m/sec over water when it accidentally drops a 2.0 kg fish. Assuming the altitude of the bird is 12 meters above the water, and disregarding friction, what is the speed of the fish when it hits the water?
- 3) A 1500 Newton piano is dropped from a 30 meter high building.
 - a. Find the speed of the piano after it has fallen 10 meters.
 - b. Find the speed of the piano right before it hits the ground.
- 4) How much Gravitational Potential Energy does a 125 kg Santa have if he is standing on a high roof 20 meters above the ground? What would be Santa's velocity right before he hit the ground if he fell?
- 5) How many joules of potential energy does a 5 kg toy train gain if it is lifted 2 meters in the air?
- 6) How much kinetic energy does a 2000 kg car on the Polar Express have traveling at 10 m/sec? If it speeds up until it is going twice as fast (20 m/sec), how much more kinetic energy does it have?
- 7) A pendulum is swinging back and forth. At what position is its kinetic energy at its maximum? At what position is gravitational potential energy at its maximum?
- 8) What is the potential energy of a 50 kg elf standing on a chair 1.5 meters above the floor? What will happen to the potential energy if the elf decides to jump off the chair?
- 9) A naughty elf throws a 1.5 kg snowball at another elf with a speed of 10 m/sec. What is the kinetic energy of the snowball? What happens to that energy when it hits the other elf?
- 10) What is the kinetic and potential energy of a 20 kg bike sitting on Santa's shelf 2 meters above the ground?