Name: Period:

Free Falling Objects 2

1. The Sears Tower in Chicago is 443 m tall. A pigeon accidentally knocks an egg out of its nest. Ignoring air resistance, how fast is the egg moving when it is still 220 m above the ground? How long does it take for the egg to hit the ground?

2. A baseball is thrown vertically up with a speed of 24 m/s. How high does it go?

How long does it take to return to the ground?

3. The tallest tree (*Sequoia Sempervirens*) in California is 111 m tall. An angry squirrel kicks a pinecone off the tree at a certain initial velocity and the cone hits the ground in 3.8 s.

a) Ignoring air resistance and assuming no branches were hit on the way down, what are the magnitudes of the pinecones’ initial and final velocities?

b) How long does it take to hit the ground?

4. A Kangaroo can jump to a maximum 1.8 m high. What was his initial velocity?