

Name: _____ Date: _____

m_r^β **Physics Practice: Modeling Falling with no air resistance**

Use the spreadsheet model you built in class. Assume acceleration due to gravity is 9.8 m/s/s, and a time step of 0.1 seconds. Explain how you modeled your answers.

1. If an object is dropped with zero initial speed, how far has it fallen after 2 seconds?

2. If an object is dropped with zero initial speed, how long will it take to fall from the rooftop of the Empire State Building?

3. If a person can throw a ball up at 20 m/s, can they throw the ball onto the top of a 5 story building?

4. Iowa-class battleships fired 16" diameter rounds that weighed up to 2700 pounds, and at maximum range the rounds spent 1.5 minutes in flight.

a. Estimate the initial upward velocity of the round.

b. Estimate the maximum altitude of the round.