

Name _____
Regents Physics
Period _____

Date _____
Measure & Math WS 7R
Mr. Moy

Free Fall and Throwing Upwards

1. The Westin Stamford Hotel in Detroit is 228 m tall. If a worker on the roof drops a sandwich, how long does it take the sandwich to hit the ground, assuming there is no air resistance? How would the air resistance affect the answer?
2. A trained acrobat can safely land on the ground at speeds up to 15 m/s. What is the greatest height from which the acrobat can fall?
3. Andy Friese skydives out of a plane. We can assume his initial velocity is zero and neglect air resistance. How far has he traveled after 55 seconds?
4. A tennis ball is struck with a racket, firing it straight upward at 19 m/s. After how much time will it be falling at 14 m/s? [Hint: How do we show direction changes?]
5. An arrow is fired straight up, leaving the bow at 16.7 m/s. If air resistance is negligible, how high will the arrow rise?
6. A man named Bungkas climbed a palm tree in 1970 and built himself a nest there. In 1994 he was still up there and he had not left the tree for 24 years. Suppose Bungkas asks a villager for a newspaper, which is thrown to him straight up with an initial speed of 11.5 m/s. When Bungkas catches the newspaper from his nest, its velocity is now 2.5 m/s straight up. From this information, find the height at which the nest was built. Assume that the newspaper is thrown from a height of 1.5 m above the ground.