NAME: _____ PERIOD: _____ DATE: _____

Unit 1 Worksheet 11: Freefall word problems

Example Problems

1. **Reverend northwick climbs to the church belfry one morning to determine the height of the church. From an outside balcony he drops a book and observes that it takes 2.0 s to strike the ground below. How high is the balcony of the church belfry?**

Givens:

Equation:

Show Work:

Answer:

2. **The steamboat geyser in Yellowstone National Park is capable of shooting its hot water up from the ground with a speed of 48 m/s.   A) How high can this geyser shoot? B) How long is the water in the air?**

Part A

Givens:

Equation:

Show Work:

Answer:

PART B

Equation:

Show Work:

Answer:

Homework Free Fall Problems

1. King Kong carries Fay Wray up the 321 m tall Empire State Building. At the top of the skyscraper, Fay Wray's shoe falls from her foot. How fast will the shoe be moving the instant before it hits the ground?

2. A baby blue jay sits in a tall tree awaiting the arrival of its dinner. As the mother lands on the nest, she drops a worm toward the hungry chick's mouth, but the worm misses and falls from the nest to the ground in 1.50 s. How high up is the nest?

3. A giraffe, which stands 6.0 m tall, bites a branch off a tree to chew on the leaves, and he lets the branch fall to the ground. How long does it take the branch to hit the ground?

4. Billy, a mountain goat, is rock climbing on his favorite slope one sunny spring morning when a rock comes hurtling toward him from a ledge 40.0 m above. Billy ducks and avoids injury. (A) How fast is the rock traveling when it passes Billy? (B) How does this velocity compare to that of a car traveling down the highway at the velocity of 25 m/s (equivalent to 55 mi/h)?

5. How long is Tina, a ballerina, in the air when she leaps straight up with a speed of 1.8 m/s?