Name:
Date:
Class:
Even More Motion Problems

LO: Calculate the motion of objects
SLE: Meet or exceed NGSS

Solve these problems. Please show your work.

1. An aid package is dropped over California from an altitude of 10,000m. Unfortunately, the parachute doesn't open. How long will it take to hit the ground?

2. What will be the final velocity of the package in problem #1?

3. How far will an object fall after dropping for 15 seconds?

4. If a bowling ball falls from the observation deck of Smith Tower (150 m high), how long will it take to hit the ground?

5. Assuming the bowling ball in question #4 has a mass of 4kg, how much momentum will be created when it hits the ground?

6. How far can an airplane fly in 10 hours if it's flying at a speed of 650 km/h?

7. A runner goes from a full stop to a speed of 5m/s in 3 seconds. What is her rate of acceleration?

8. A chair has a mass of 10kg. What is its weight?

9. The chair in problem #8 sits on the roof of St. John School, 9.25m above the ground. How much gravitational potential energy does it have? How much kinetic energy does it have?

10. If a the chair from problem #8 falls off the roof, and is frozen in time when it's only 1m above the ground, how much kinetic energy will it have?

11. Dr. Crowther rides to school. The combined mass of himself and his bike is 80kg. If he's traveling at a speed of 5m/s, how much kinetic energy does he have?

12. A ball rolls off of a desk at a speed of 2 m/s. The desk is 0.75m high. How far from the desk will the ball be when it hits the floor?

13. A marble is dropped from a window 6m above the ground. What is it's final velocity at the moment it hits the ground?