Kinematic Motion Test Review

MULTIPLE CHOICE (The test will have around 6 multiple choice)

1. A child lets go of a ball at the top of a driveway. The instantaneous velocity of the ball as the child lets go is
   a. 9.8 b. zero c. positive d. negative

2. Ignoring air resistance, if a 10 kg ball and a 200 kg crate were dropped from the top of a building, the acceleration of the crate is _____ the acceleration of the ball.
   a. less than
   b. greater than
   c. equal to
   d. cannot be determined without initial velocity

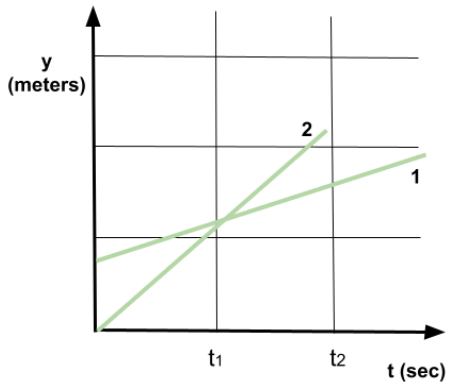
3. What is the acceleration of an object traveling a constant 50 m/s for 15 seconds?
   a. 0 m/s^2 b. -9.8 m/s^2 c. 3.33 m/s^2 d. not enough information

4. Can an object's velocity equal zero when the object's speed is greater than zero?
   A. Yes, when the object moves in a straight line at a constant rate
   B. Yes, when the accelerates in a straight line in one direction
   C. Yes, when the object returns to its original position
   D. No, it is impossible because they are always equal
   E. No, it is impossible because the magnitude of the velocity is always greater that speed

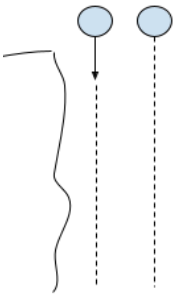
5. Position as a function of time of two moving objects is presented by the graph. Which of the following statements is true?

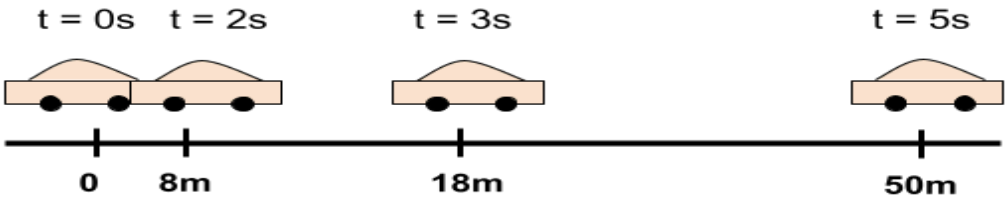
   I. Object I has a greater velocity than object 2
   II. Object 2 has a greater velocity that object I
   III. At time t_1 they have the same velocity
   IV. At time t_1 object 2 passes by object I

   A. I B. III C. I and III
   D. I, II and III E. II and IV



6. A tennis ball is dropped from a cliff. A second tennis ball is thrown down from the cliff. Make a statement about the acceleration of each tennis ball.
   A. The first ball falls with a greater acceleration
   B. The second ball falls with a greater acceleration
   C. They both fall with the same acceleration because they started from the same height
   D. The both fall with the same acceleration because they are in a free fall
   E. More information is required





7. The diagram above presents the position and elapsed time of a motorbike that starts from rest and accelerates at a constant rate. What is the average velocity of the motorbike during the first 5 s?
   A. 0 m/s B. 5 m/s C. 10 m/s D. 15 m/s E. 20 m/s

Problem Solving *(The test will have around 4 of these problems)*

1) What is the acceleration of a spaceship that can accelerate from 10,000 m/s to 17,500 m/s in 20 seconds?

2) How long does it take the headmaster to run to our classroom, if the distance is 125 meters, and he accelerates, from rest, at a rate of 4 m/s^2?

3) What is the initial speed of a shopping cart if it ends up going 20 m/s in 4 seconds, and has an acceleration of 2 m/s^2?

4) How fast do you need to throw a football above you in order to get it to travel 80 meters high?

5) A pen falls off my desk. It took 1.5 seconds to fall. What was the velocity of the pen just before it hit the ground?

6) I get angry and throw a pen straight down to the floor. I throw it with an initial speed of 20 m/s. It took 0.2 seconds to fall. What is the velocity of the pen just before it hits the floor?

7) You are standing at the edge of a cliff which is 40m tall. You throw an apple up with a speed of 15 m/s. How long does it take to fall to the bottom of the cliff?