DO NOT TURN THIS PAGE!!!!!

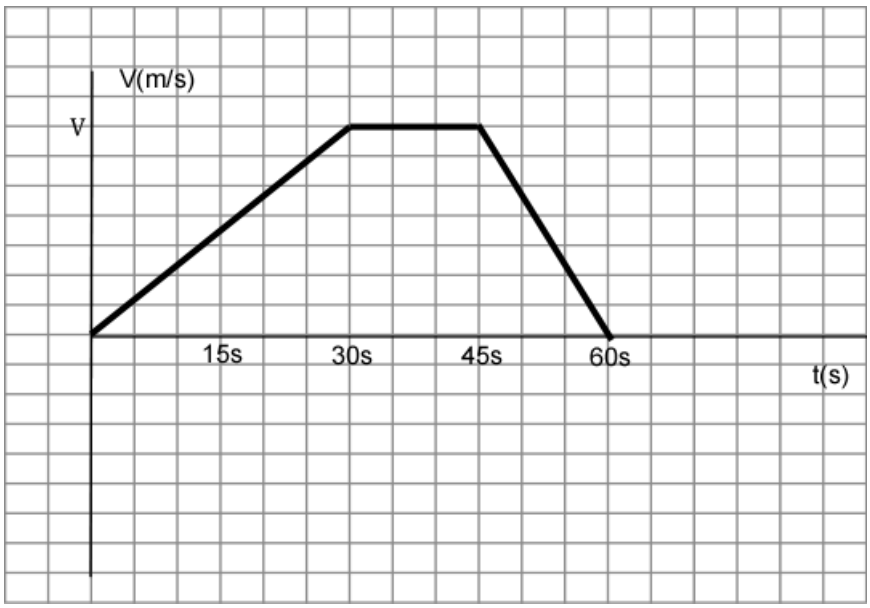
Name: _____

Physics 50
Winter 2014
Exam 1

MAKE SURE TO SHOW ALL WORK IN COMPLETE DETAIL. NO CREDIT WILL BE GIVEN IF NO WORK IS SHOWN. EXPRESS ALL ANSWERS IN SI UNITS.

1. A car travels a distance of 250 m in 60 s. The V vs. t graph for the motion of the car is as shown below. (10 pts)
   a) Calculate the constant speed V of the car in the diagram below.
   b) Calculate the distance traveled in the first 30 s.
   c) Calculate the distance traveled in the last 15 s.

ANS: a)6.7 m/s b)100.5 m c)50.25 m



2. A rock is thrown vertically upward from ground level at time t = 0. At t = 1.5 s it passes the top of a tall tower, and 1.0 s later it reaches its maximum height. (10 pts)
   a) Calculate the height of the tower.
   b) Calculate the speed of rock when it strikes the ground.

ANS: a)25.7 m b)24.5 m/s

3. A hot air balloon had just lifted off and is rising at the constant rate of 2.5 m/s. Suddenly one of the passengers realizes she has left her camera on the ground. A friend picks it up and tosses it straight upward with an initial speed of 18 m/s. The passenger is 2.6 m above her friend when the camera is tossed. (20 pts)
   a) Calculate the height of passenger when she catches camera.
   b) Calculate the speed of the camera when it is caught by passenger.
   c) Draw the graph of y vs. t for the passenger and camera and label all pertinent information.

ANS: a)3.05 m b)16.2 m/s