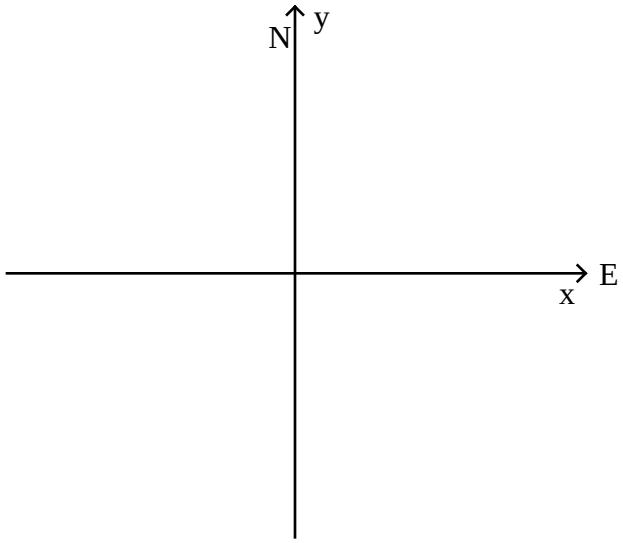
Name:_____

Physics 4A FIRST EXAM Chapters 1 - 4 Spring 1993

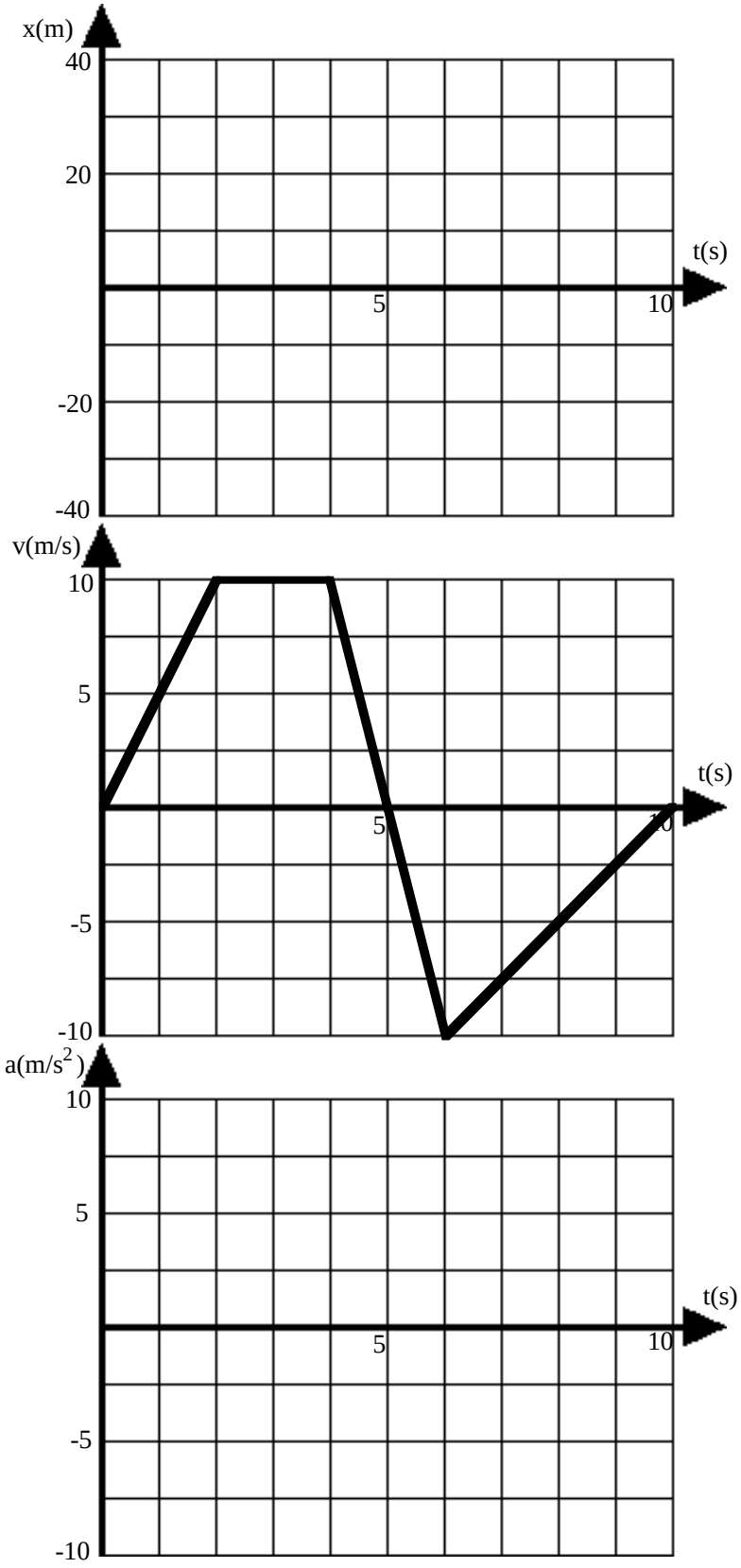
Solve the following problems in the space provided. Use the back of the page if needed. Each problem is worth 20 points. You must show your work in a logical fashion starting with the correctly applied physical principles which are on the last page. Your score will be maximized if your work is easy to follow because partial credit will be awarded.

1. A beetle crawls northeast for a distance of 14.1cm then due south for 5.00cm. (a)Sketch these two displacements on the axes below. (b)Find the total displacement (magnitude and direction) of the beetle and (c)show it below.



2. An acorn falls from a 10.0m high oak tree. Find the time it takes to fall and the speed just before it strikes the ground.

3. Using the velocity vs. time graph below sketch the position vs. time and the acceleration vs. time. Assume that the object is at x = 0 when t = 0.



4. A ski jumper leaves the jump at an angle of 20˚ above horizontal with a speed of 25.0m/s. Her flight lasts 4.00s. Find the distance of the horizontal portion of the flight and vertical drop involved.

5. The moon orbits earth once every 27.4days. The distance between the earth and the moon is 3.84×10^8m. Use this data to find the velocity and acceleration of the moon. Describe the direction of each vector.