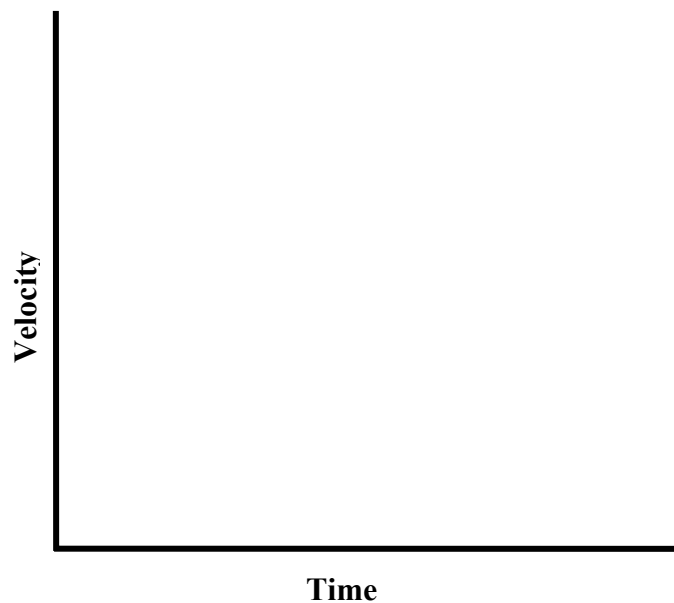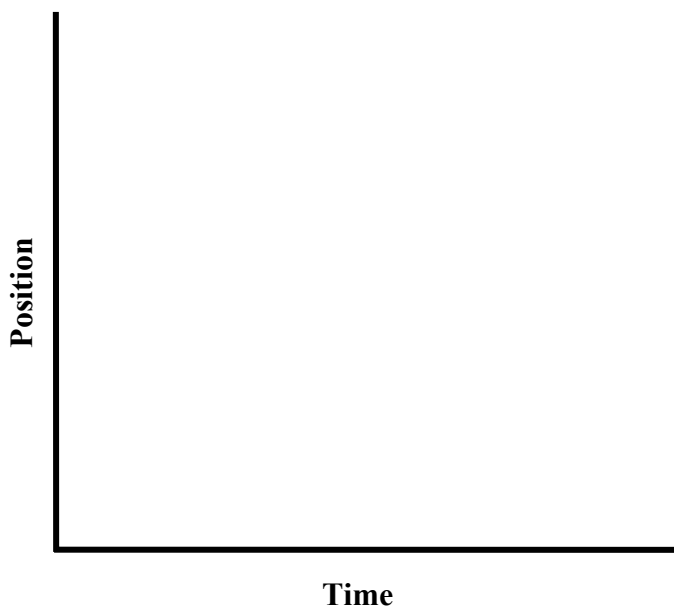# Physics 151 – Kinematics w/acceleration

1. The text box contains Aesop's Fable regarding the Tortoise and the Hare.

Read the fable carefully and then construct a position vs. time graph and a velocity vs. time graph that captures the kinematic data in the story. Each graph should have one "curve" drawn for the tortoise and one for the hare. Your position vs. time graph should include the finish line.

Position

Time

Velocity

Time

There once was a speedy hare who bragged about how fast he could run. Tired of hearing him boast, Slow and Steady, the tortoise, challenged him to a race. All the animals in the forest gathered to watch.

Hare ran down the road for a while and then and paused to rest. He looked back at Slow and Steady and cried out, "How do you expect to win this race when you are walking along at your slow, slow pace?"

Hare stretched himself out alongside the road and fell asleep, thinking, "There is plenty of time to relax."

Slow and Steady walked and walked. He never, ever stopped until he came to the finish line.

The animals who were watching cheered so loudly for Tortoise, they woke up Hare.

Hare stretched and yawned and began to run again, but it was too late. Tortoise was over the line.

After that, Hare always reminded himself, "Don't brag about your lightning pace, for Slow and Steady won the race!"

2. A ball is given an initial velocity as shown. Draw the x-versus-t, v_x-versus-t, and a_x-versus-t graphs of the motion with the graphs stacked vertically so that a vertical line connects equal values of t on each of the three graphs.

$v_0 > 0$

Position (x)

Time→

Velocity

Time→

Acceleration

Time→