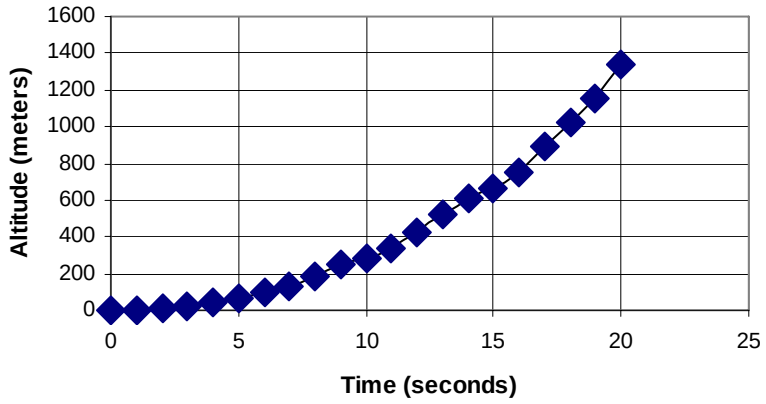
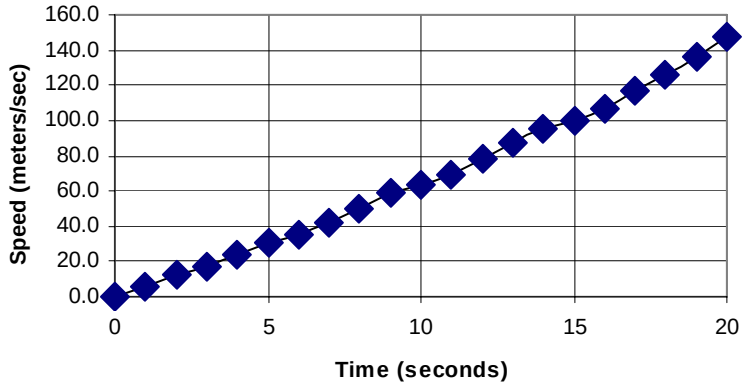
Problem 1 - Plot the altitude of Endeavor Shuttle versus time during the first 20 seconds of launch.



Problem 2 - Plot the speed of the Endeavor Shuttle versus time during the first 20 seconds of launch.



Problem 3 - About what is the speed of the Shuttle when it clears the gantry in A) meters/sec/ B) miles per hour?
Answer: A) The gantry height is 106 meters, so from Problem 1, we estimate that this speed occurred about 6 seconds after launch. The speed at this time is about **S=36 m/s.** B)
S = 36 m/s x (3600 s/1 hr) x (1 km/1000 meters) x (0.62 miles/km) = **80 mph**.

Problem 4 - What is the average acceleration of the shuttle during its first 20 seconds of flight?

Answer: Acceleration = velocity change/time, so between T=0 and T = 20 sec, the speed changed from 0 m/s to 148 m/s so A = 148/20 sec = **7.4 m/sec/sec**.