# Physics 20H   Lesson 3H   Assignment

1. Two planes leave the same airport at 1500 hours to fly to the same distant city. One has a speed of 800 km/h and the other has a speed of 480 km/h. How long will it take the faster plane to get 480 km ahead of the slower one?

2. An executive jet cruises at 700 km/h. If the winds are light, it consumes kerosene at the rate of 38.0 L/min. If the jet's fuel tanks contain 6840 L when full, what is its maximum range?

3. A train travels 58 km at an average velocity of 77 km/h (E), waits for 5.0 min. at a station and then runs for half an hour at an average velocity of 64 km/h (E).
    a) Find the total displacement of the train.
    b) Find the average speed for the whole trip.

4. The three toed sloth is the slowest moving land mammal (next to a Physics 20H student). On the ground , the sloth moves at an average speed of 0.037 m/s, considerably slower than the giant tortoise, which walks at 0.076 m/s. After 12 min. of walking, how much further would the tortoise have gone relative to the sloth?

5.   A Physics student (late for class) drives a car at a constant +25 m/s for 10.0 min. The car runs out of gas, so the driver, carrying an empty gasoline can, walks at +1.5 m/s for 20.0 min. to the nearest gas station. After the 10.0 min. needed to fill the can, the student walks back to the car at a slower –1.2 m/s. The car is then driven home at –25 m/s.

   a) Draw the velocity-time graph for the driver using seconds as your time unit.
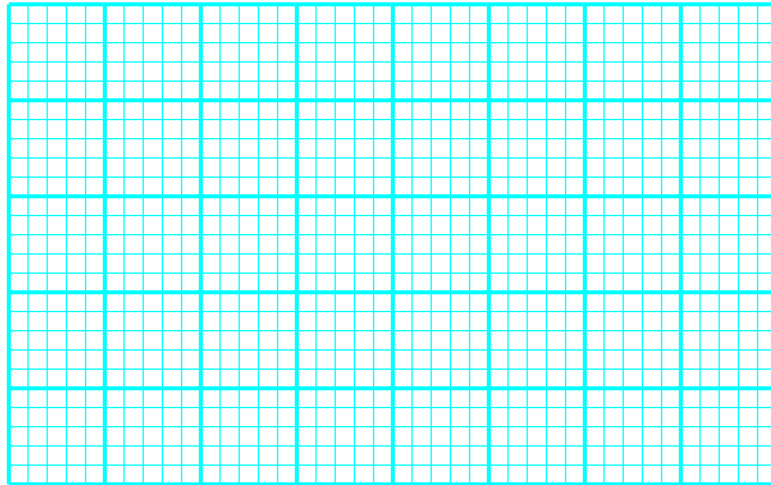
   b) Draw the corresponding displacement-time graph. (Use the areas from graph above)