# Displacement, Velocity and Acceleration Worksheet

1. Calculate the displacement for each of the following pairs of initial and final positions, respectively, along the x-axis.

   (a) +3 m, +5 m

   (b) +3 m, -7 m

   (c) +7 m, -3 m

2. Are speed and velocity the same? Why or why not?

3. You drive your truck down a straight road for 5.2 km at 43 km/h, at which point you run out of fuel.

   (a) How long were you driving?

   (b) You walk 1.2 km farther, to the nearest gas station, in 27 min (0.45 h). What is your average velocity from the time you started your truck to the time you arrived at the gas station?

   (c) You carry the fuel back to the truck in 35 min (0.58 h).

      (i)   Calculate the average velocity for the total trip.

      (ii) Calculate the average speed for the total trip.

4. The position-time graph for a certain particle moving along the x axis is shown in the figure below.
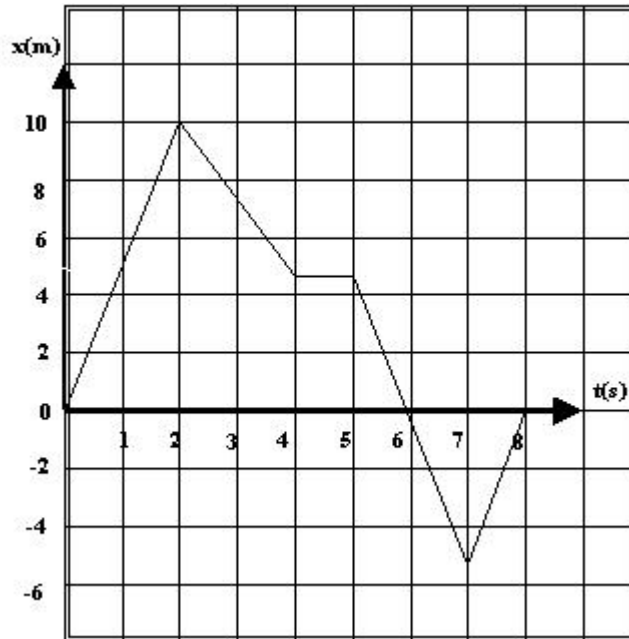
(a) Describe the motion during each of the following time intervals.

   (i)   0-2 s

   (ii)   2-4 s

   (iii) 4-5 s

   (iv)   5-7 s

   (v)   7-8 s

(b) Calculate the average velocity during each of the following time intervals.
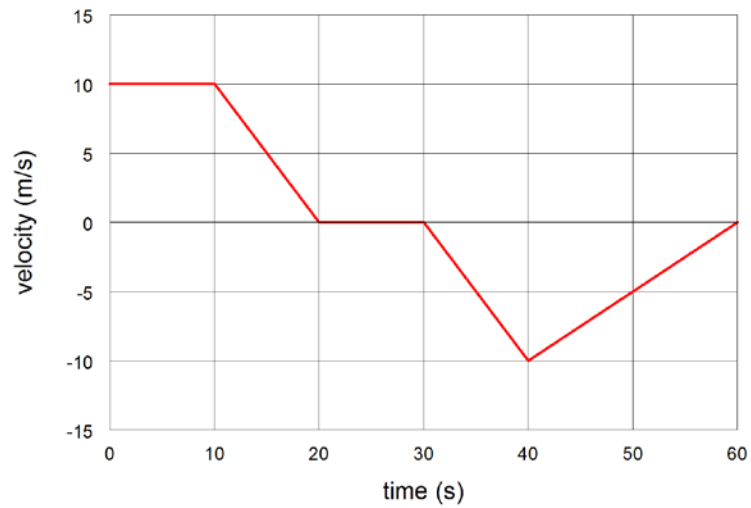
    (i)   0-2 s

    (ii)   2-4 s

    (iii) 5-7 s

    (iv) 0-8 s

5. The velocity of a car over a period of time is shown in the following velocity-time graph.

(a) Describe the motion during each of the following time intervals.

(i)   0-10 s

(ii)   10-20 s

(iii)   20-30 s

(iv)   30-40 s

(v)   40-60 s

(b) Calculate the acceleration during each of the following time intervals.

   (i)   0-10 s

   (ii)   10-20 s

   (iii) 40-60 s

6. When Kitty 0'Neil set the dragster records for the greatest speed and least elapsed time, she reached 635.91km/h in 3.72 s. Calculate her average acceleration?