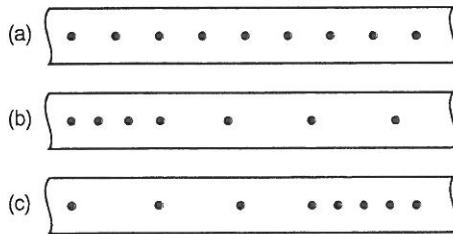


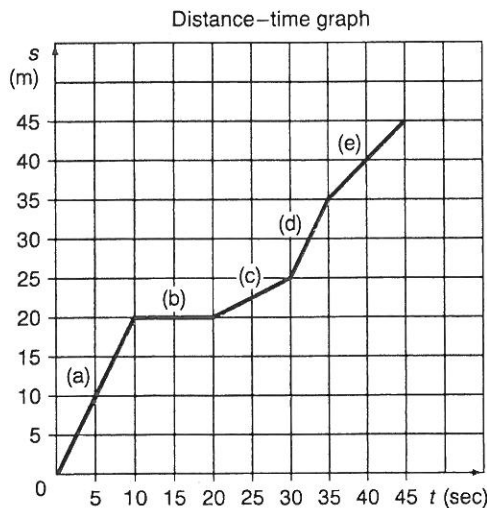
Measuring motion

Answer these questions in your notebook. You may need to use a calculator.

1. What are the units of distance, time, speed and acceleration?
2. What is the equation used to calculate:
 - (a) average speed, in terms of distance and time?
 - (b) acceleration, in terms of speed and time?
3. Calculate the average speed for:
 - (a) a car that moves 500 m in 30 s
 - (b) a jogger who runs 100 m in 50 s
4. A car starting from rest is travelling at 30 ms⁻¹ after 90 s. Calculate the car's acceleration.
5. Describe the motion for each of the following ticker tapes.



6. Work out the speed for each of the following straight line sections of the graph below:
 - (a) 0–10 s
 - (b) 10–20 s
 - (c) 20–30 s
 - (d) 30–35 s
 - (e) 35–45 s

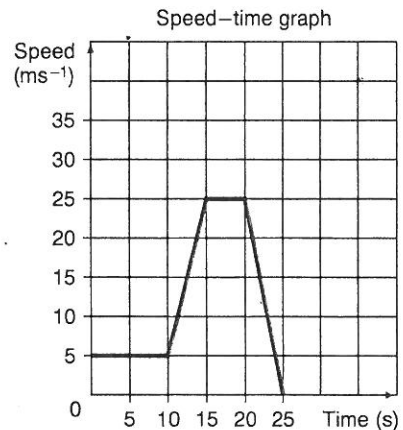


7. (a) Use graph or grid paper to plot the following information on a distance–time graph.

Time (s)	0	5	10	15	20	25	30	35
Distance (m)	0	5	15	25	35	35	40	45

- (b) During which time interval was the maximum speed reached?
 - (c) What was the maximum speed?
 - (d) During which time interval was the object at rest?
8. Describe the appearance of the distance–time graph for each of the following:
 - (a) an accelerating object
 - (b) an object moving at constant speed
 - (c) a stationary object
 9. Describe the appearance of the speed–time graph for (a), (b) and (c) in Question 6. (You may need to sketch the graph first.)
 10. (a) Calculate the acceleration for each of the straight line sections of the following graph.

- (i) 0–10 s
- (ii) 10–15 s
- (iii) 15–20 s
- (iv) 20–25 s



- (b) Calculate the total distance travelled from time = 0 until time = 25 s.
- (c) Describe the motion represented by the graph.