

Speed-Time Graphing Questions

1. How can you tell from a speed–time graph whether an object is accelerating?

2. Sketch and label the following graphs:

- distance–time graph for constant speed
- speed–time graph for constant speed
- speed–time graph for constant acceleration

3. Sketch a speed–time graph with two separate, labelled lines for

- high positive acceleration;
- low negative acceleration.

4. The cheetah is the fastest land animal and can accelerate rapidly in an attack. Table 1 shows the speed of a cheetah measured at various times.

- Draw a speed–time graph using the information in Table 1.
- Using your graph, calculate the average acceleration of the cheetah.

Time (s)	Speed (m/s)
0.0	0.0
0.5	5.0
1.0	10.0
1.5	15.0
2.0	20.0

(P, D) 5. Two runners, Cathryn and Keir, take part in a fundraising marathon. The graph in Figure 7 shows how their speeds change for the first 100 s from the start of the marathon.

- Which runner has the greater acceleration? Show this by calculating the acceleration of each.
- Which runner is ahead after 100 s? Calculate and compare the distance travelled by each.

