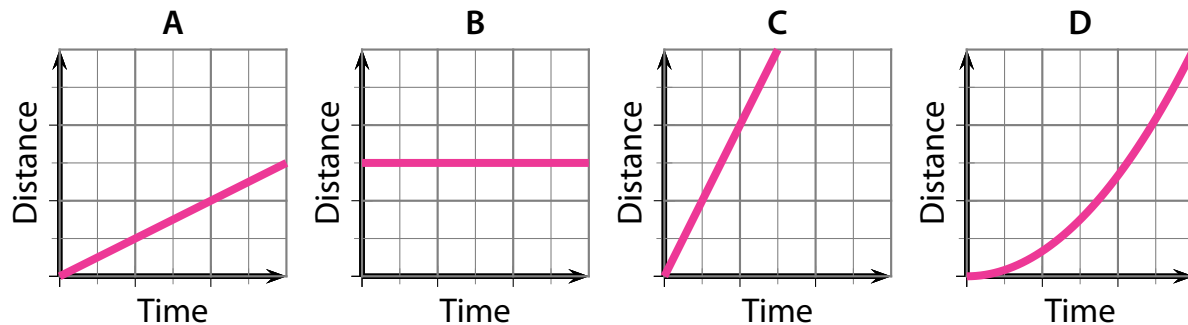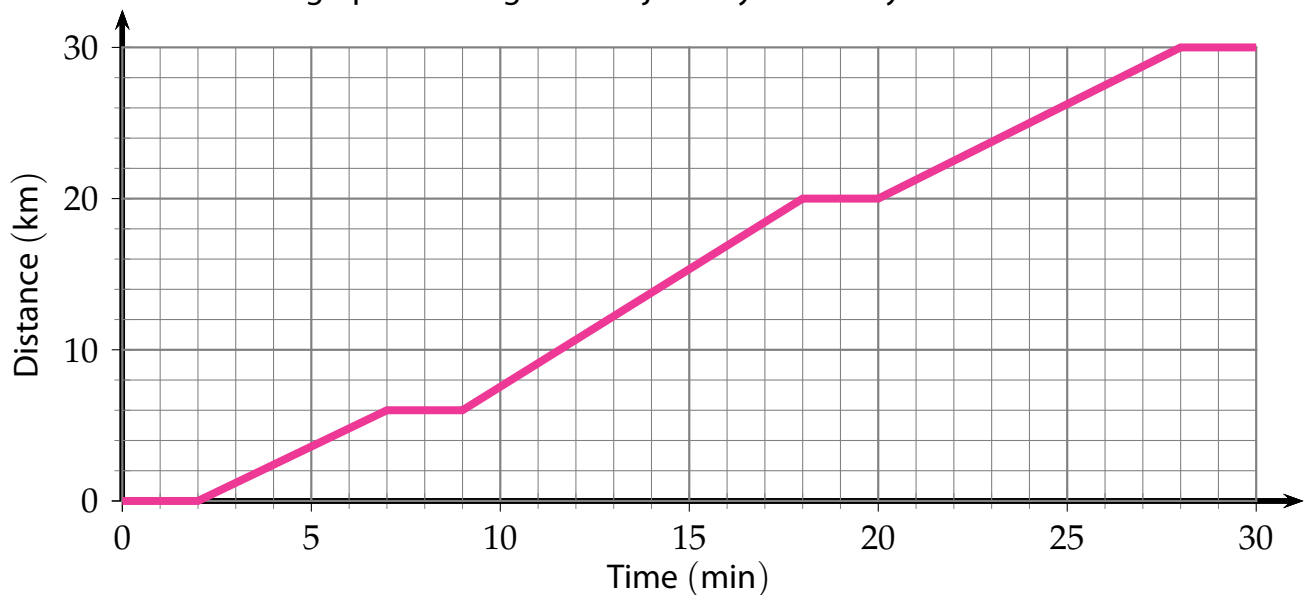In a **distance-time** graph, the total distance travelled so far is plotted against the time since the journey started.

1   Which of the graphs A-D (with the same axis scales) best matches these descriptions?

(a) stationary   (c) moving quickly at a steady speed

(b) moving slowly at a steady speed   (d) getting faster

Here is a distance-time graph showing a train's journey into a city.

2   This question is about the train in the graph above.

(a) How many stations did the train stop at (or start from)?

(b) How much time did the train spend at each station?

(c) How far apart are the first two stations?

3   This question is also about the train in the graph.

(a) How much time did it take for the train to travel between the first two stations?

(b) How far did the train move each minute between the first two stations?

(c) What was the speed of the train between the first two stations in km/h? (Hint: Think how far the train would go if it went at that speed for a whole hour.)

(d) What was the speed of the train between the last two stations in km/h?

(e) Mark the fastest part of the motion with an **F** on the graph.

4   Calculate the speed of the train in Q3 (c) in m/s.

5   Another train only stops at the first and last station. In between, it goes at the speed of the train in Q3 (d). How much time does it take to travel between the first and last station?

An athlete is doing circuit training. This graph shows their displacement, which is their distance from the start line of a 100 m track. They jog away from the line, and run back to it.
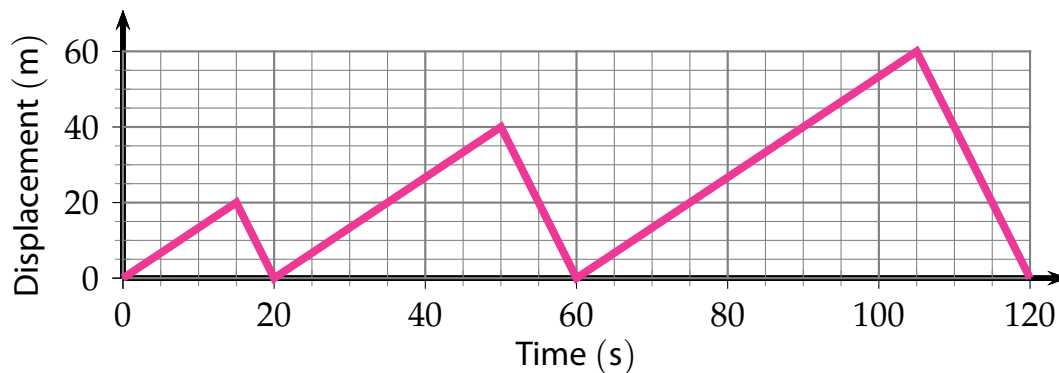
6   Use the graph of the athlete's motion to answer these questions.

(a) Does the athlete stop for a break? How can you tell?

(b) How far does the athlete **jog** in total?

(c) How fast does the athlete **run**? Give your answer in m/s.