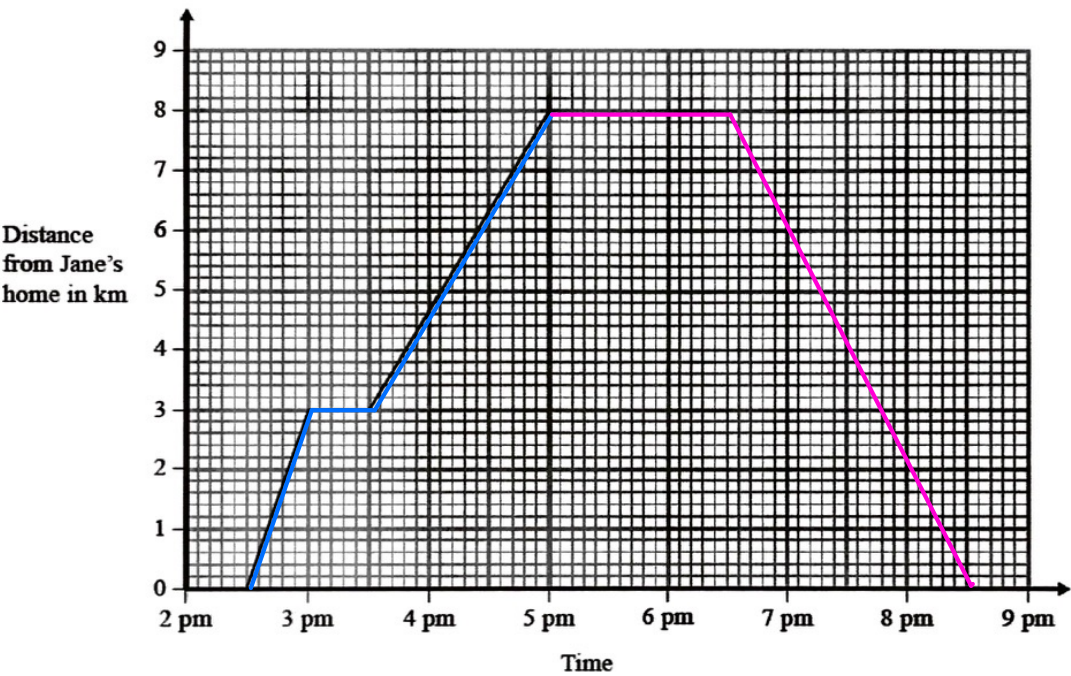## Questions

Q1.

Jane walked from her home to the ice rink.

The travel graph for Jane's journey to the ice rink is shown below.

On the way to the ice rink Jane stopped at her friend's house.

(a) How far is it from her friend's house to the ice rink?

$8 - 3 = 5$

.... km

(1)

Jane was at the ice rink for 1 hour 30 minutes.
She then walked home at a steady speed.
Jane took 2 hours to walk home.

(b) Complete the travel graph for this information.

(2)

(Total for question = 3 marks)

1 Paul was travelling in his car to a meeting. He set off from home at 7:00 am, and stopped on the way for a break. This distance–time graph illustrates his journey.

a At what time did he:

   i stop for his break?   *9.00 am*

   ii set off after his break?   *10.00 am*

   iii get to his meeting place?   *12.00 pm*

b At what average speed was he travelling:

   i over the first hour?   *40 Km/h*

   ii over the second hour?   *160−40 = 120 Km/h*

   iii for the last part of his journey? $\dfrac{240-160}{2} = 40\ Km/h$

7am
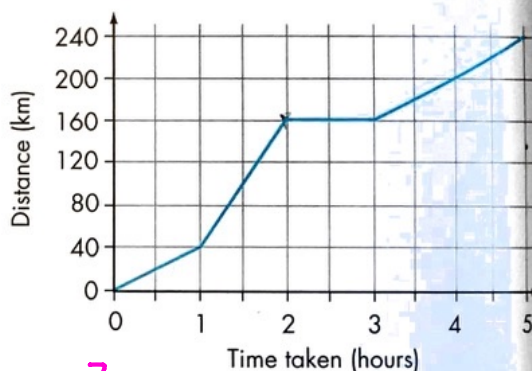
2 James was travelling to Cornwall on his holidays. This distance–time graph illustrates his journey.
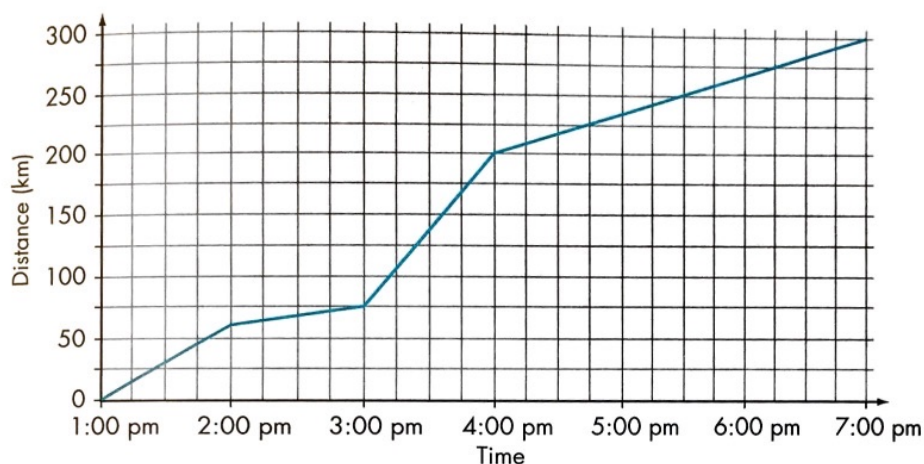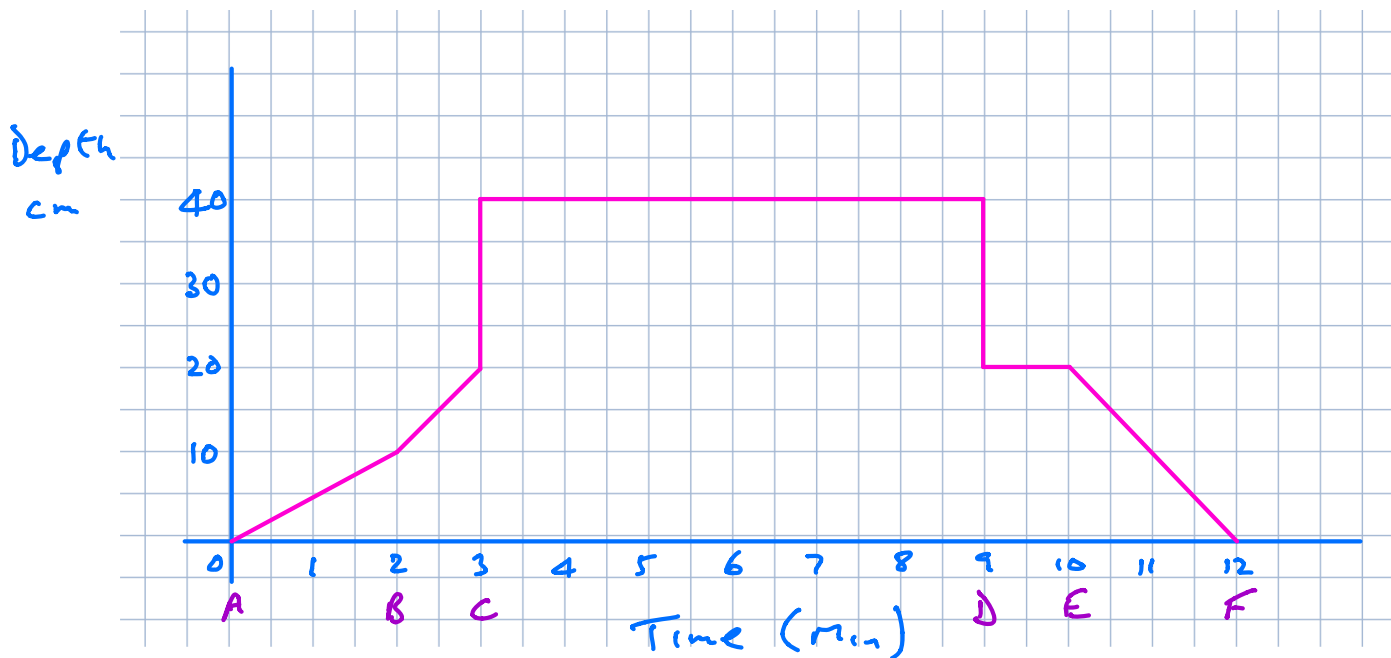
a His fastest speed was on the motorway.

   i How much motorway did he use?   *200 − 75 = 125 Km*

   ii What was his average speed on the motorway?   *125 Km/h*

b i When did he travel the slowest?   *2.00 pm to 3.00 pm*

   ii What was his slowest average speed? $\dfrac{75-60}{1} = 15\ Km/h$

Depth
cm

Time (min)

A B C D E F

Jim decides to have a bath

A   Jim turns on hot tap

B   Jim turns on cold tap

C   Jim turns off taps and gets in bath

D   Jim gets out of bath

E   Jim removes plug to let water drain away

F   Bath is empty

---

3 Richard and Paul had a 5000 m race. The distance covered is illustrated below.

a Paul ran a steady race. What is his average speed in:

i   metres per minute?

ii km/h?

b Richard ran in spurts. What was his quickest average speed?

c Who won the race and by how much?
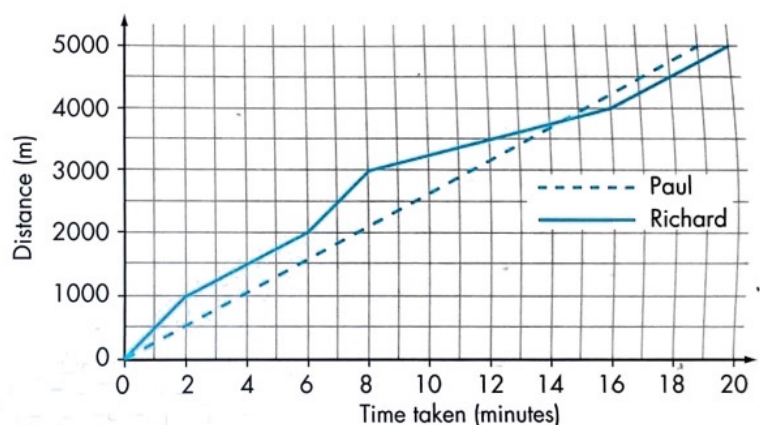
a) i) $\dfrac{5000}{19} = 263$ m/min

  ii) $= 15.8$ Km/hr
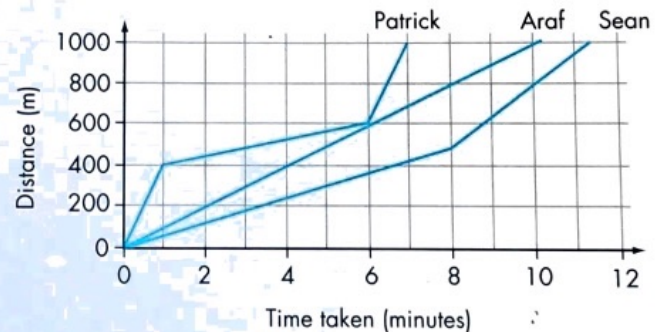
b) $\dfrac{1000}{2} = 500$ m/min

c) Paul won by 1 minute or 250m

4 Three friends, Patrick, Araf and Sean, ran a 1000 metres race. The race is illustrated on the distance–time graph below.

  a Describe the race of each friend.

  b i What is the average speed of Araf in m/s?

    ii What is this speed in km/h?

Distance (m) axis: 0, 200, 400, 600, 800, 1000
Time taken (minutes) axis: 0, 2, 4, 6, 8, 10, 12
Labels: Patrick, Araf, Sean

a)   Araf ran at a constant speed

     Patrick started and finished fast but was slower in the middle

     Sean started slowly but finished fast

b) i) $\dfrac{1000}{10} = 100$ m/min $\dfrac{100}{60} = 1.7$ m/s

  ii) $100 \times 60 = 6000$ m/hr
              $= 6$ Km/hr