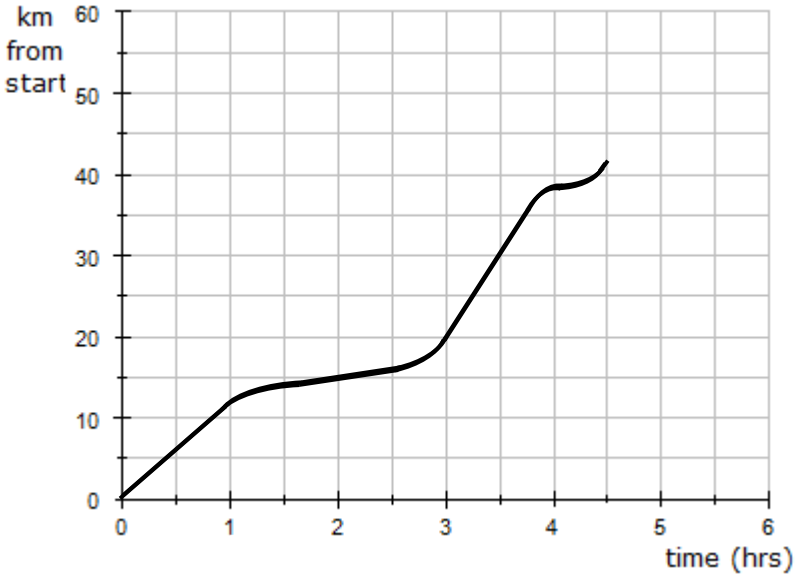
Basic Patterns and Graphs Practice #2

1. a) Plot lines on the graph opposite for the situation where:

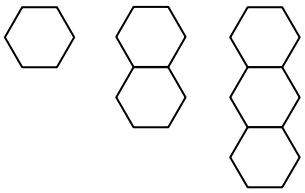
- Abe starts 50 km from home.
- He bikes home for two hours at 15 km an hour.
- Then he gets a puncture and has to walk. He gets home six hours after he started.



b) What is the average speed he walks at .....

c) On the graph is the distance of a person running a marathon for the first time. What is that person's top speed during the race? .....

2. a) Fill in the table relating the number of hexes to the number of sides in the pattern:

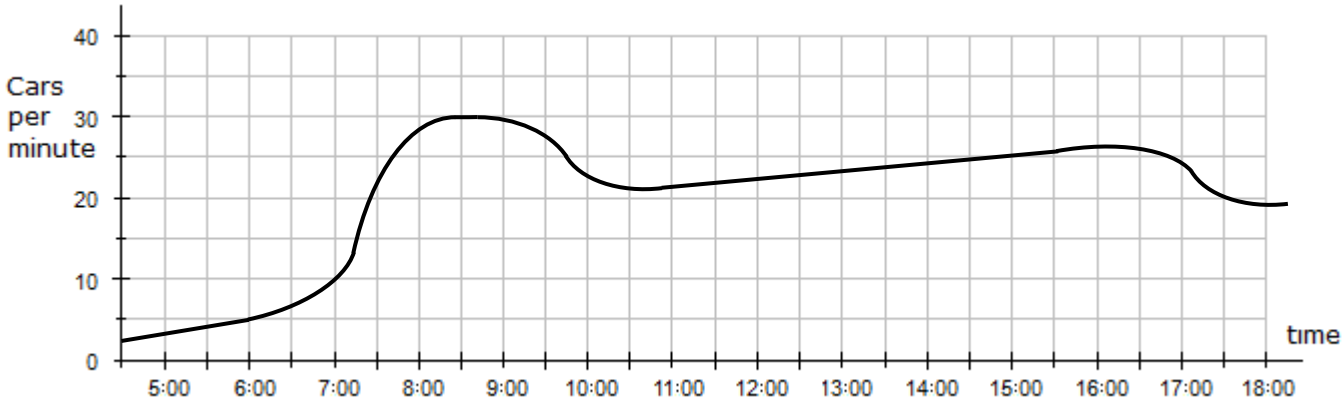


hexes	1	2	3	4	5	6
sides	6	11				

b) Give the equation for sides (s) from hexes (h): s = ...

c) Using that equation, work out how many sides 40 hexes have: .....

3. The graph below shows the number of cars per minute along a stretch of road over a day:



a) When is the road at its most busy? .....

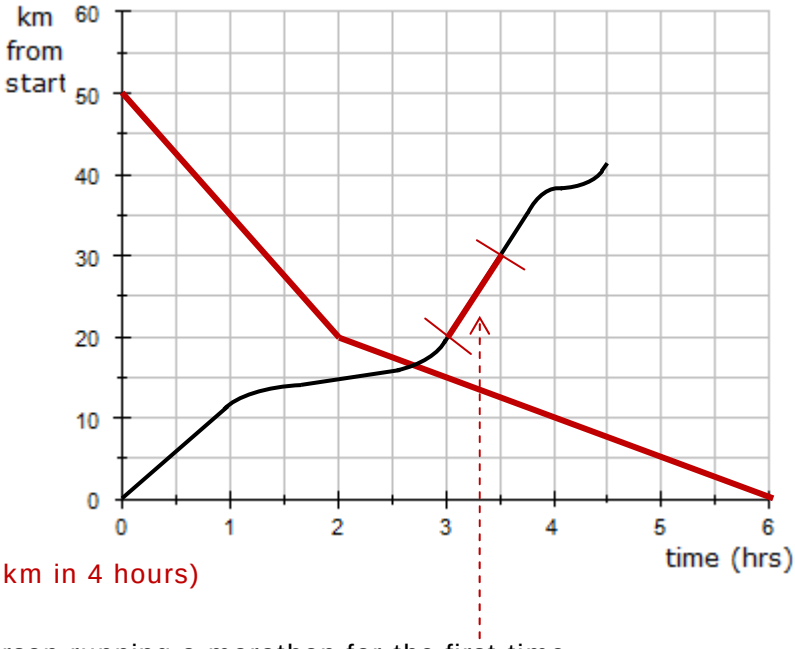
b) When were there more than 25 cars per minute on the road? .....

a) Describe the traffic around 17:00: .....

Answers: Basic Patterns and Graphs Practice #2

1. a) Plot lines on the graph opposite for the situation where:

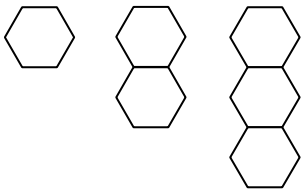
   - Abe starts 50 km from home.
   - He bikes home for two hours at 15 km an hour.
   - Then he gets a puncture and has to walk. He gets home six hours after he started.



   b) What is the average speed he walks at? **5 km/hr** (20 km in 4 hours)

   c) On the graph is the distance of a person running a marathon for the first time. What is that person's top speed during the race? **20 km/hr** (steepest = 10 km in 0.5 h)

2. a) Fill in the table relating the number of hexes to the number of sides in the pattern:



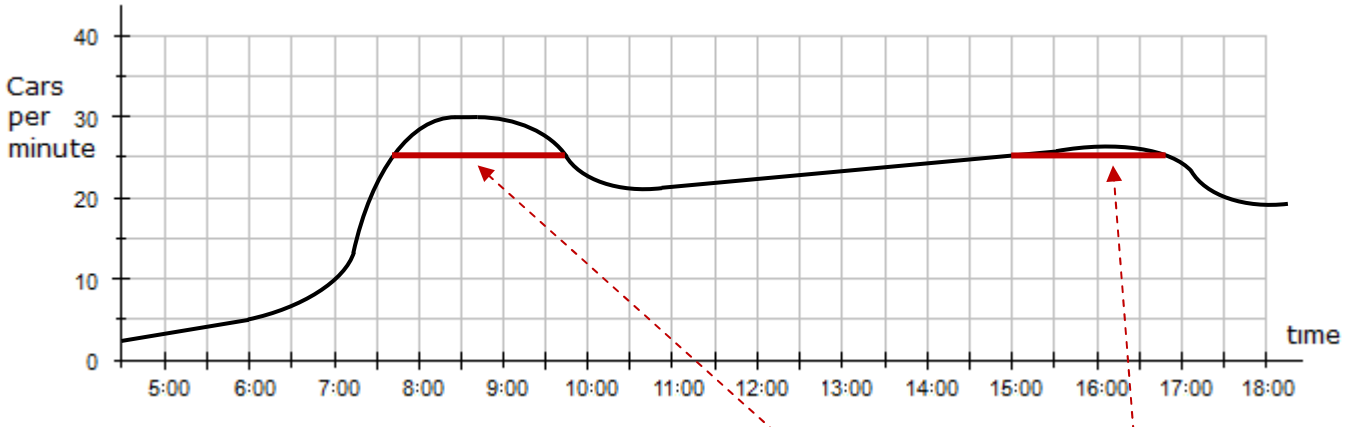
hexes	**0**	1	2	3	4	5	6
sides	**1**	6	11	**16**	**21**	**26**	**31**

   (**+ 5** between 2 and 3; **+ 5** between 3 and 4)

   b) Give the equation for sides (s) from hexes (h): s = **$5h + 1$**

   c) Using that equation, work out how many sides 40 hexes have: $s = 5 \times 40 + 1 =$ **201**

3. The graph below shows the number of cars per minute along a stretch of road over a day:



   a) When is the road at its most busy? **around 8:15–8:45** (highest point)

   b) When were there more than 25 cars per minute? **7:45 to 9:45 and 15:00 to 16:45**

   a) Describe the traffic around 17:00: **About 24 cars per minute, but dropping.**