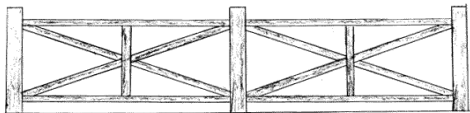


Grade 7 Maths Worksheet

Patterns function and rate

Questions:

1. A fence is made as shown in the picture below. Between every fence post there are five pieces of wood securing the area between the posts.



- a) Complete the table below:

Number of posts (Input)	1	2	3	4	5	7	9		23
Pieces of wood in between (output)	0	5	10	15				70	

- b) Write down a rule that represents the number of wood pieces in between in terms of the number of posts.
 - c) How many posts will be necessary to use 200 pieces of in between wood for fencing?
 - d) Draw a sketch that illustrates this relationship.
2. Joyce rode her bicycle for a period of $2\frac{1}{2}$ hours at an average speed of 24 km per hour.

- a) Complete the table below:

Number of hours riding the bike	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	8
Total distance covered	24	36	48						

- b) Draw a graph that represents the time Joyce was on her bicycle on the horizontal axis and the total distance she travelled on the vertical axis.
- c) Use the graph to predict how long it will take her to ride a distance of 53 km.

Grade 7 Maths Worksheet

Solution

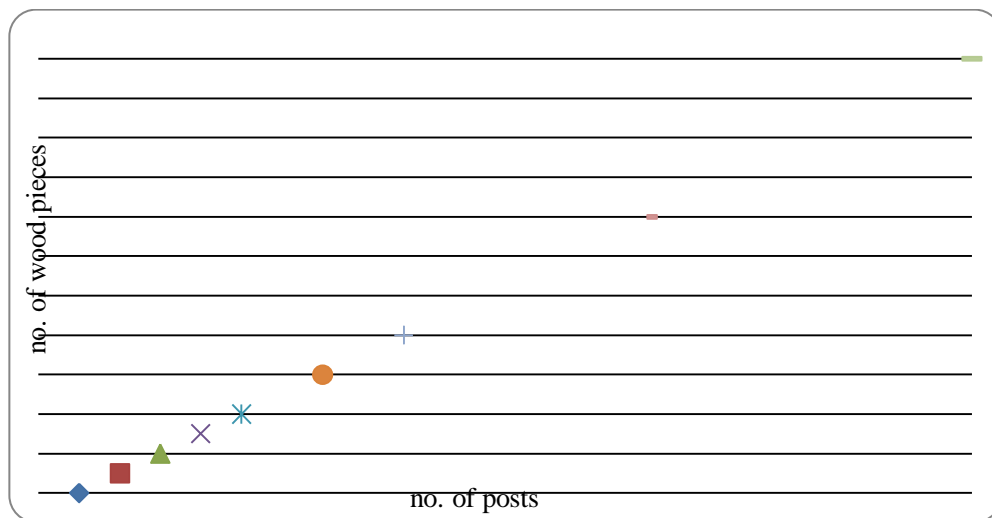
1. a)

Number of posts (Input)	1	2	3	4	5	7	9	15	23
Pieces of wood in between (output)	0	5	10	15	20	30	40	70	110

- b) No. of wood pieces = (no. of post – 1) × 5
 or
 No. of wood pieces = 5 × no. of posts - 5

- c) no. of wood pieces = 5(no. of posts – 1)
 $200 = 5(\text{no. of posts} - 1)$
 $\frac{200}{5} = \frac{5(\text{no. of posts} - 1)}{5}$
 $40 = \text{no. of posts} - 1$
 no. of posts = 40 + 1
 = 41

d)

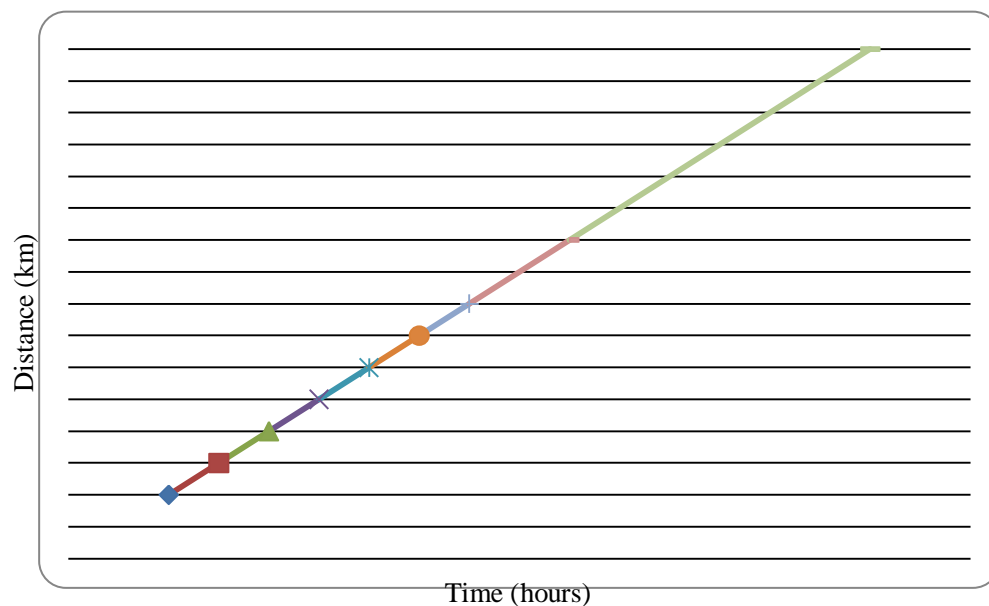


2. a)

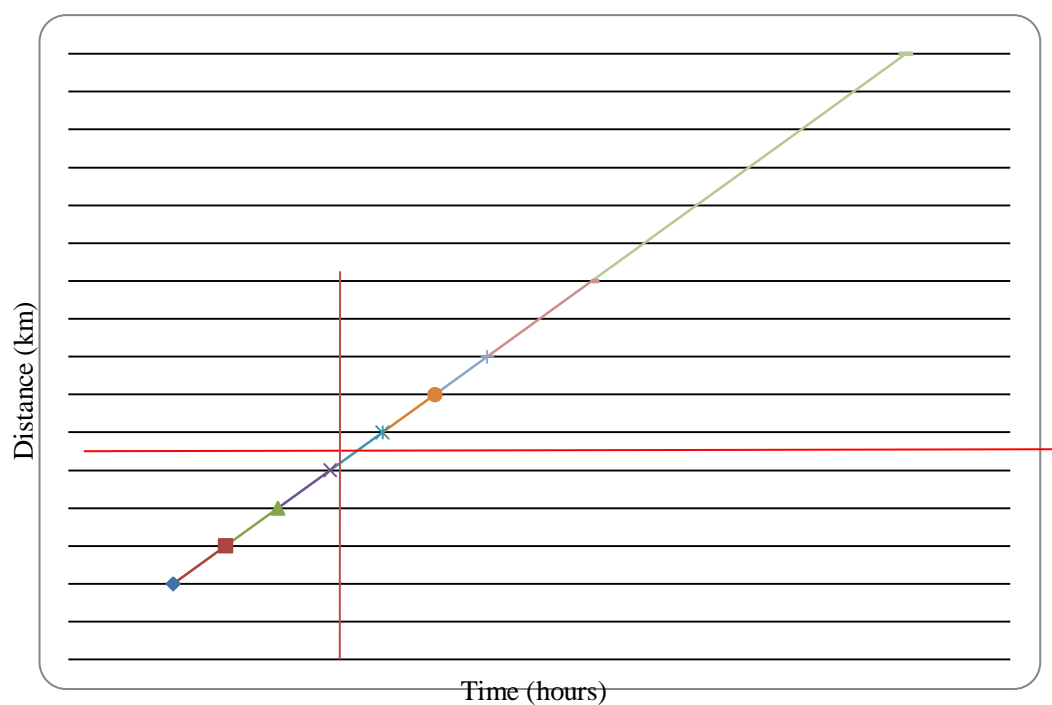
Number of hours riding the bike	1	1½	2	2½	3	3½	4	5	8
Total distance covered	24	36	48	60	72	84	96	120	192

Grade 7 Maths Worksheet

b)



c)



Therefore the time is approximately 2.10 hours = 2 hours and 6 minutes.

Grade 7 Maths Worksheet

It is important to see that these points are discrete and that the curve will not be continuous. You cannot have two and a half posts.

The interpretation of the average speed of 24km/h in this problem must be made very explicit.

Appendix of Assignment Tools

Number Pattern

Generalised number

Graphs of functions

Input / Output

Graphs

Functions

Input / Output relationships in graphs

Distance, Speed and Time relationships