

Times Two

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Summary	The lesson focuses on a function that multiplies the input by two. New notations are introduced.
Goals	<ol style="list-style-type: none">1. Name recipes (or functions).2. Explain use of the equals sign as “means”3. Use instantiated functions, e.g. $p[2]$4. Work with mixtures, e.g. $p[2] + 5$
Materials	Overheads, Handouts
Keywords	Full Class Discussion Interpretation of Equations Linear Functions Mapping Number Lines Production of Tables

Activity Plan:

1. Instructions for recipes [Notation for functions]

This lesson will prepare students for the first graphing activity, lesson 3.39 - The Human Graph. Today we'll work only with a single function, a times-two function.

Walk through the overheads with the students.

Make sure to cover using the overhead on page 1:

- The name of the function
- The special use of the equals sign that can be read as "means"
- The ingredient
- The recipe

Start filling out the table on the overhead on page 2. You may be tempted to refer to the function, p , as "doubling". But be careful: When the input is zero, the output is also zero. This doesn't really feel like doubling. Also note that, when negative input is used, the result is not double the input, in the normal sense.

You may also wish to ask whether there is any number that, when multiplied by two, yields an answer of three. This is easily asked on the overhead on page 3.

2. Pass out the handout on page 4 and display the corresponding overhead (also page 4).

Fill out the table with them.

They should try to feel comfortable about reading the recipe.

Make sure to explore things like:

What is the difference between 3 and $p[3]$?

What could $p[2+3]$ mean?

What could $p[2] + 3$ mean?

3. Homework (Pages 5 and 6)

Students will solve a problem similar to the one they solved in class.

$$p[n] = n \times 2$$

The name of
the recipe is p

The ingredient is n

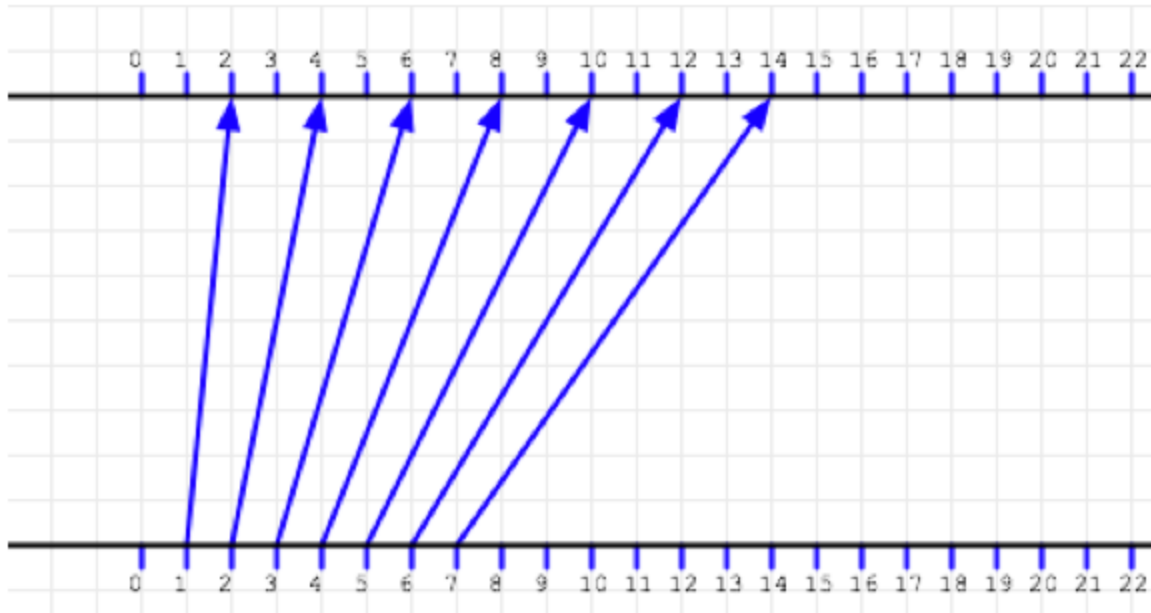
The recipe is $n \times 2$

= "means"

$$p[n] = n \times 2$$

In	Out	Out	Out	Out
n	$p[n]$	How you read $p[n]$	What $p[n]$ means	Result
0	$p[0]$	"p of zero"	0×2	0
1				
2				
3				
4				
5				
6				
7				
8				

$$p[n] = n \times 2$$



Name: _____ Date: _____

$$p[n] = n \times 2$$

Solve each problem:

Row	Problem	My Work	Result
a.	$p[7]$	7×2	14
b.	$p[10]$		
c.	$p[11]$		
d.	$p[5+0]$		
e.	$p[5+1]$		
f.	$p[5+3]$		
g.	$p[5] + 3$		
h.	$p[5] + p[3]$		
i.	$p[p[5]]$		

Homework: Complete the Following Table

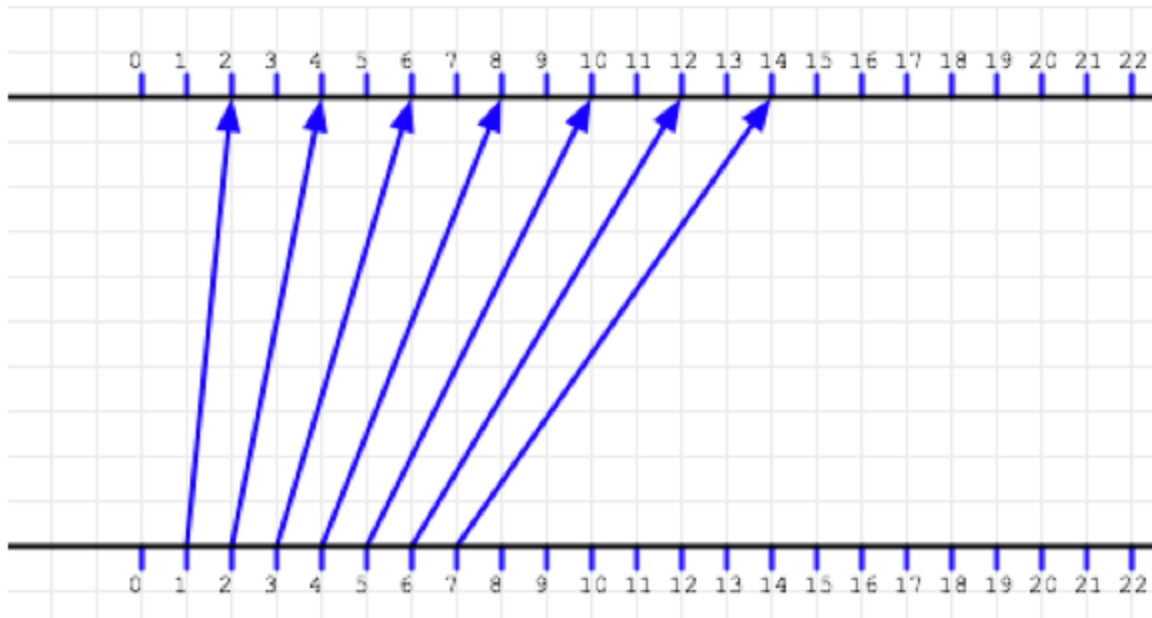
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Name: _____ Date: _____

$$q[n] = n \times 3$$

In	Out	Out	Out	Out
n	$q[n]$	How you read $q[n]$	What $q[n]$ means	Result
0	$q[0]$	"q of zero"	0×3	0
1				
2				
3				
4				
5				
6				
7				

$$p[n] = n \times 2$$



$$q[n] = n \times 3$$

