

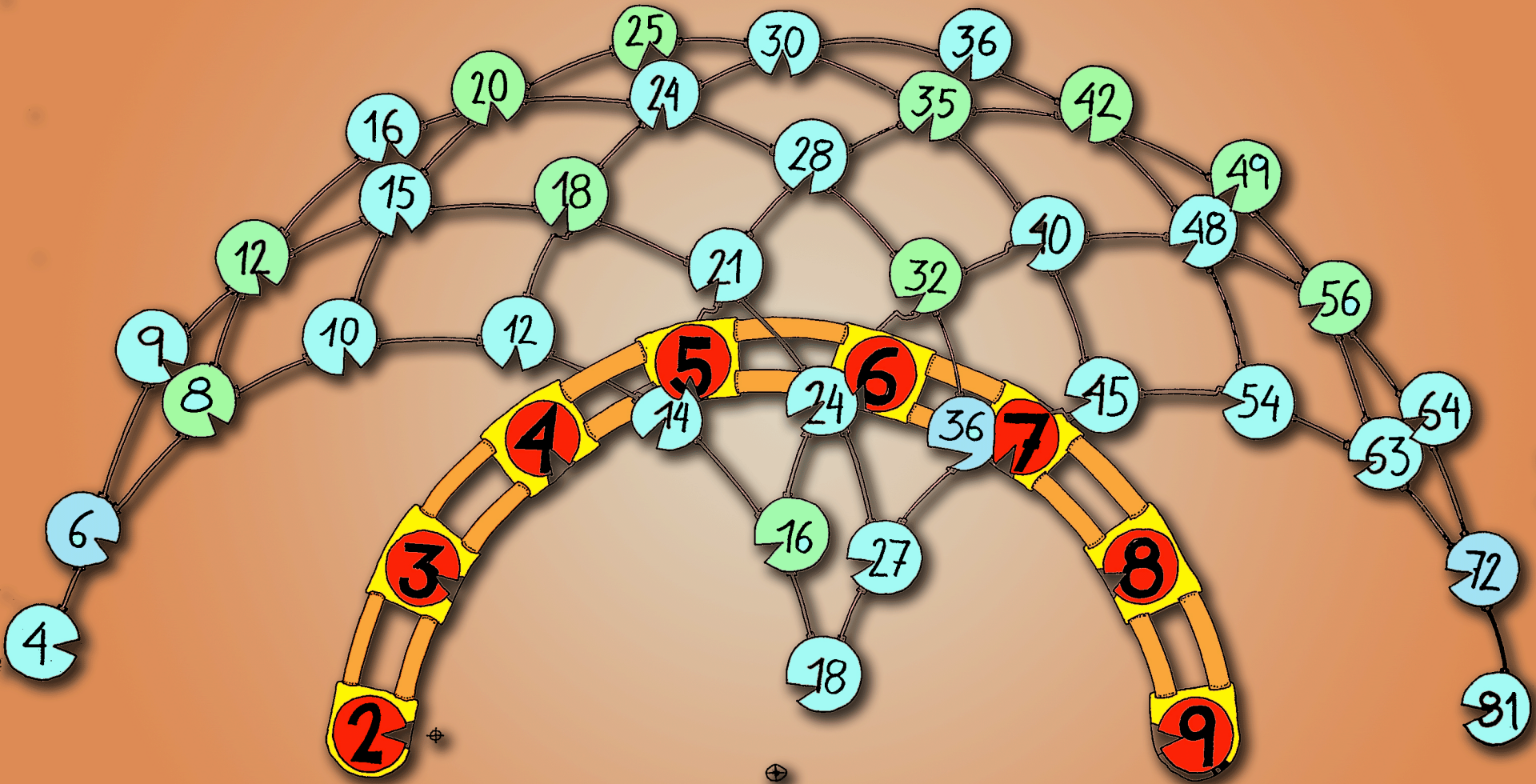
# Máquinas que multiplican



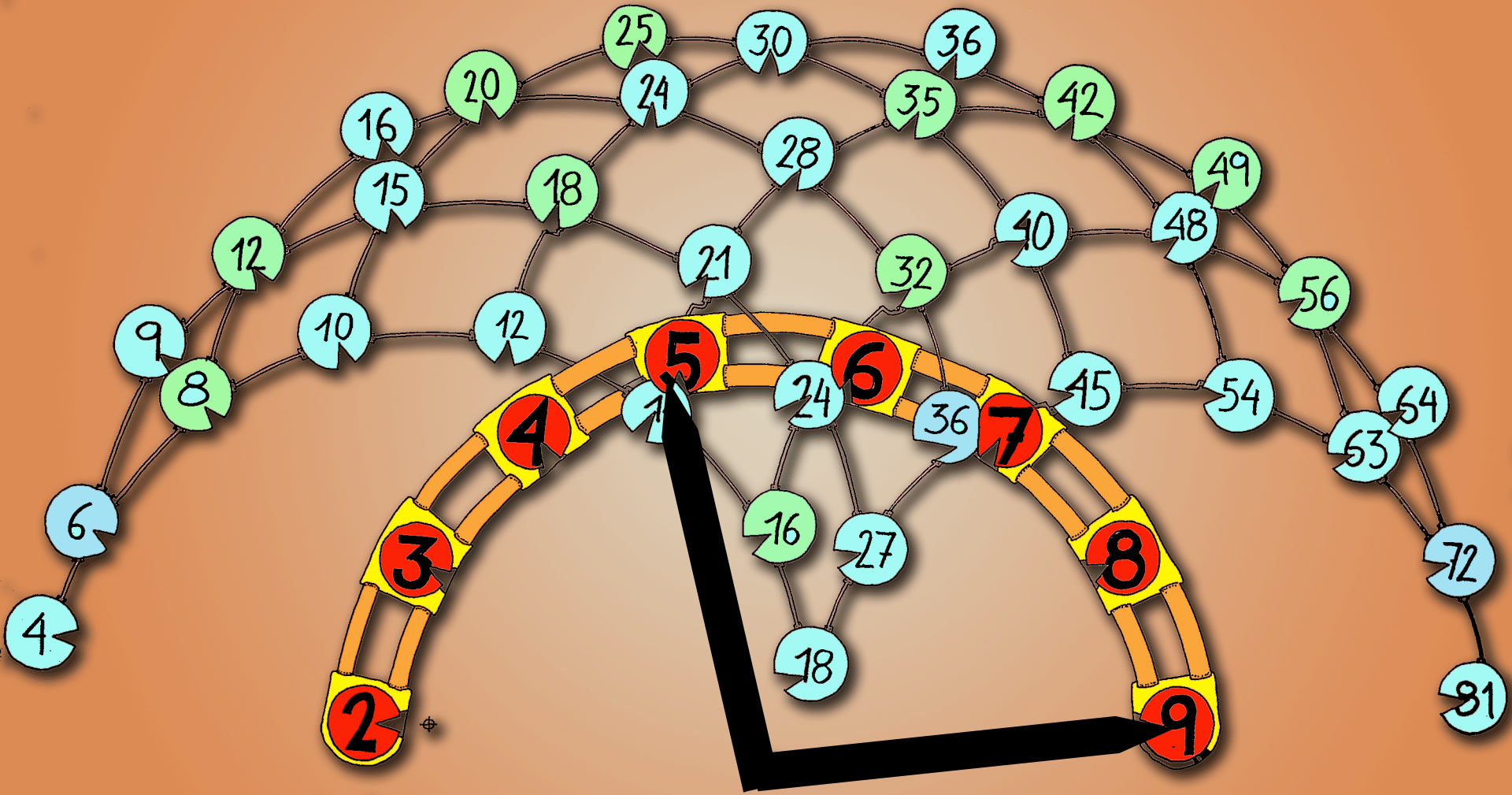
R. Vázquez, 2011



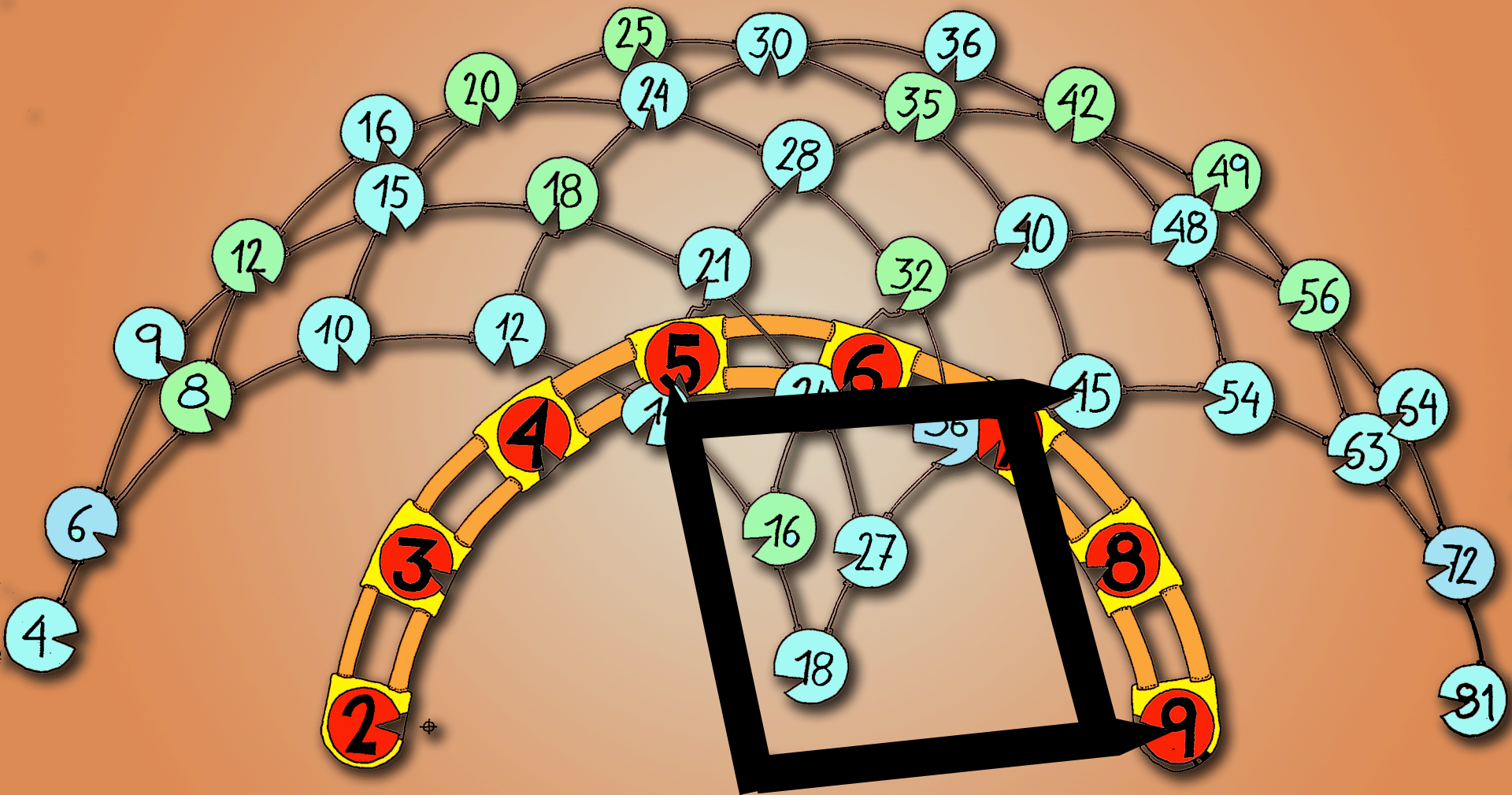
# La cúpula multiplicadora

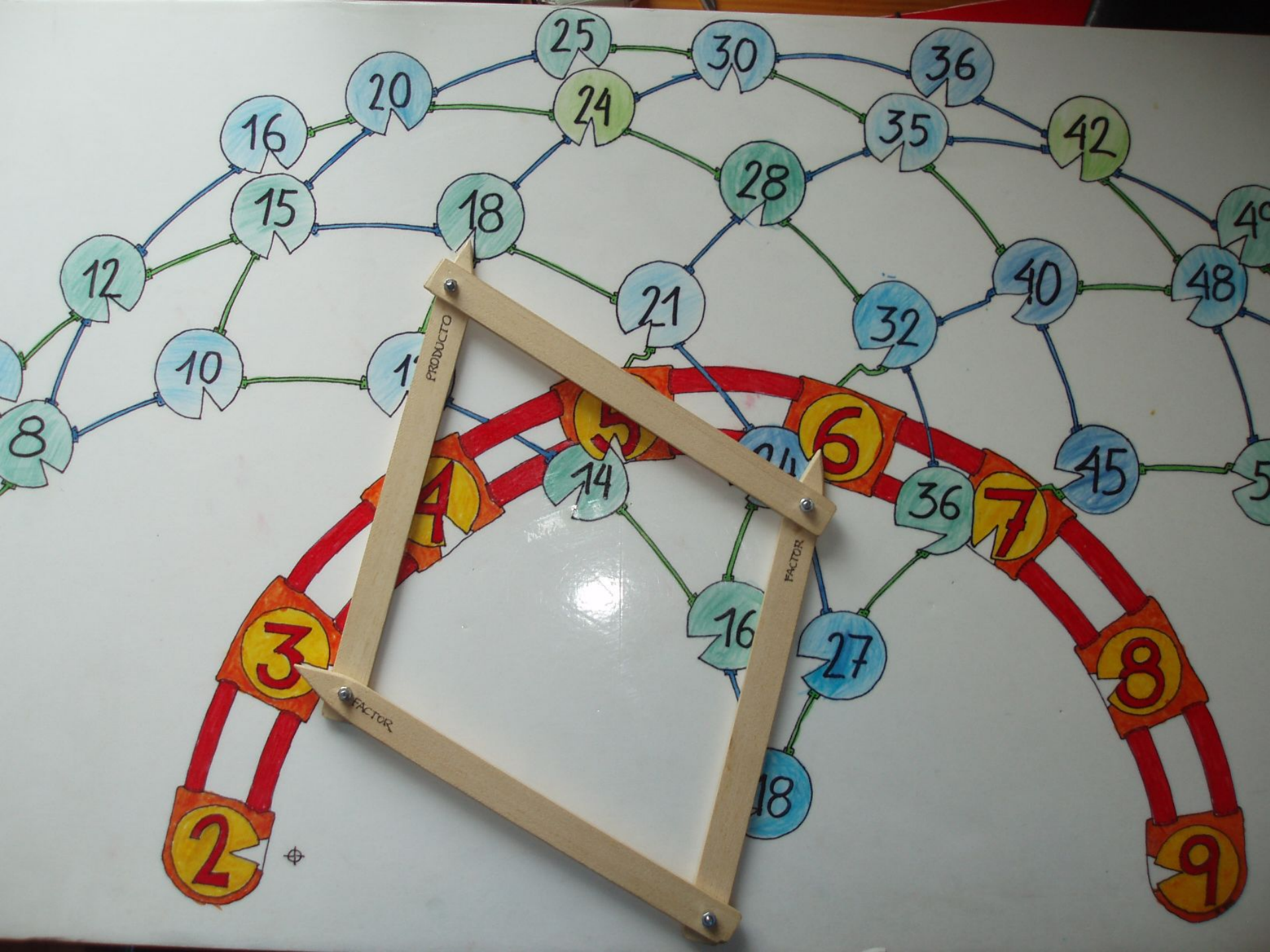


Para saber cuánto son nueve por cinco  
colocamos las flechas en los factores...



... y la otra flecha nos indica el producto

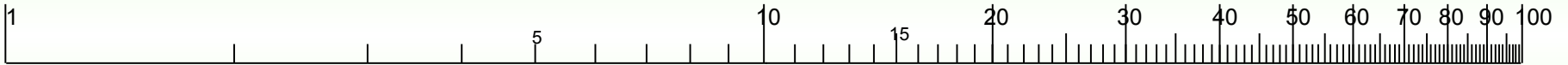
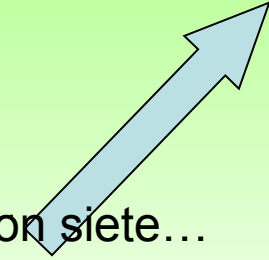




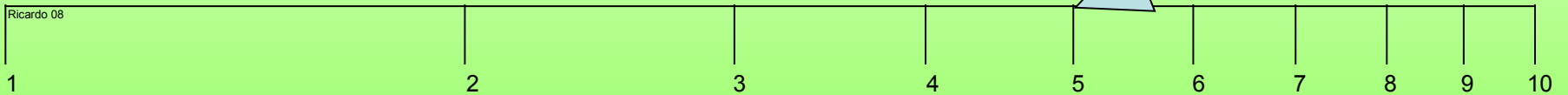
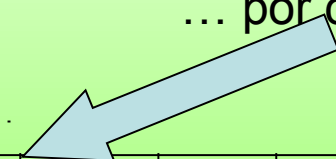
# El nomograma de multiplicar

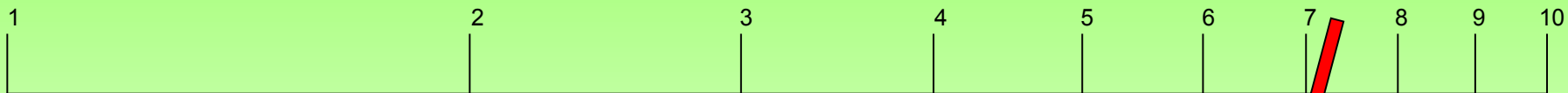


¿Cuánto son siete...

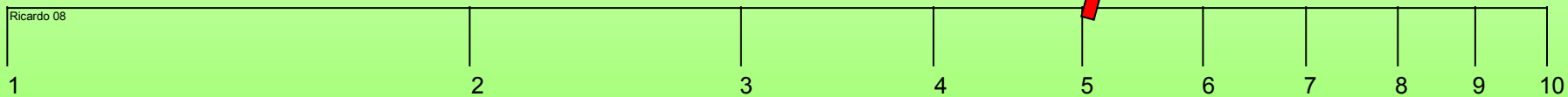
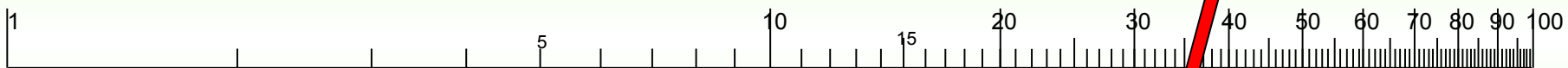


... por cinco?



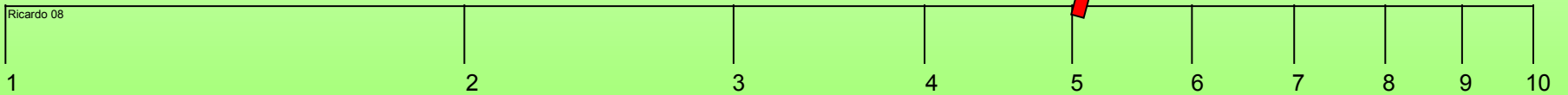
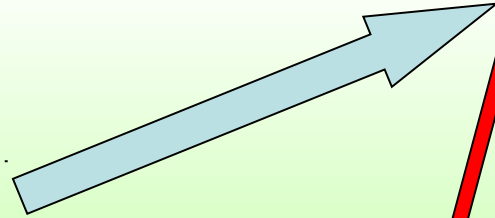
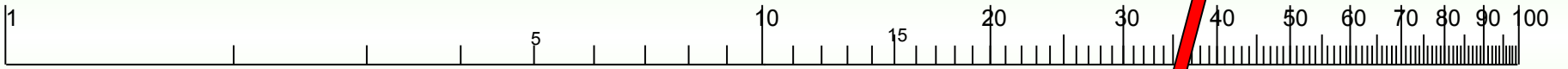


¿Colocamos la regla  
pasando por el siete  
y el cinco...

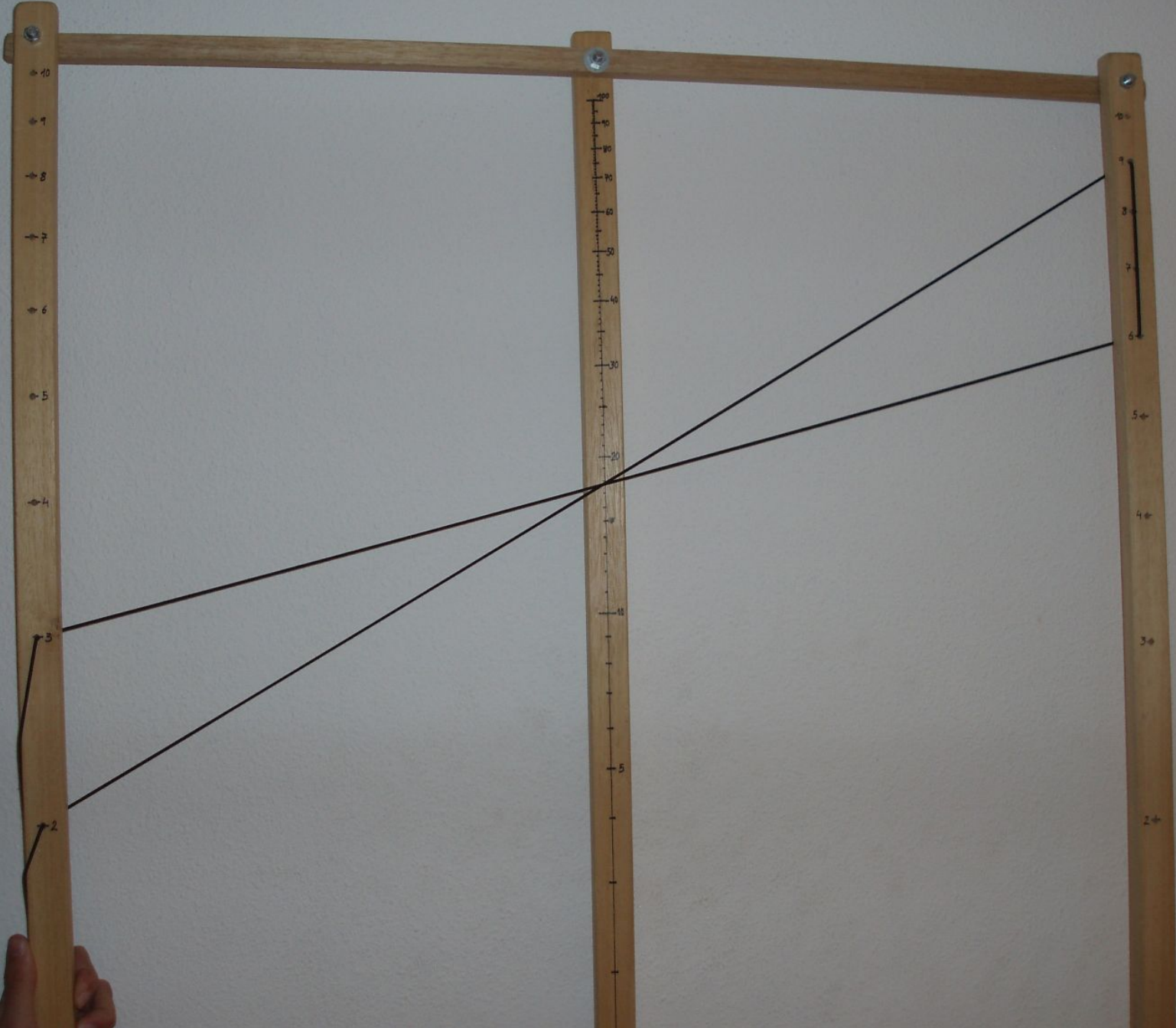




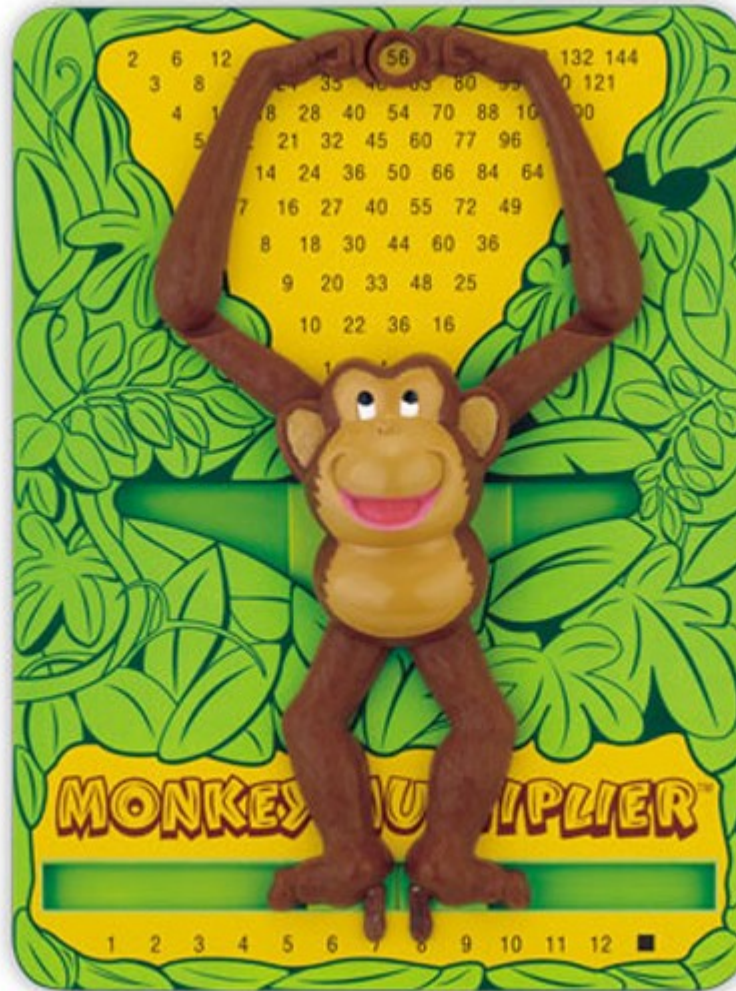
...y el resultado sale  
en la línea central.





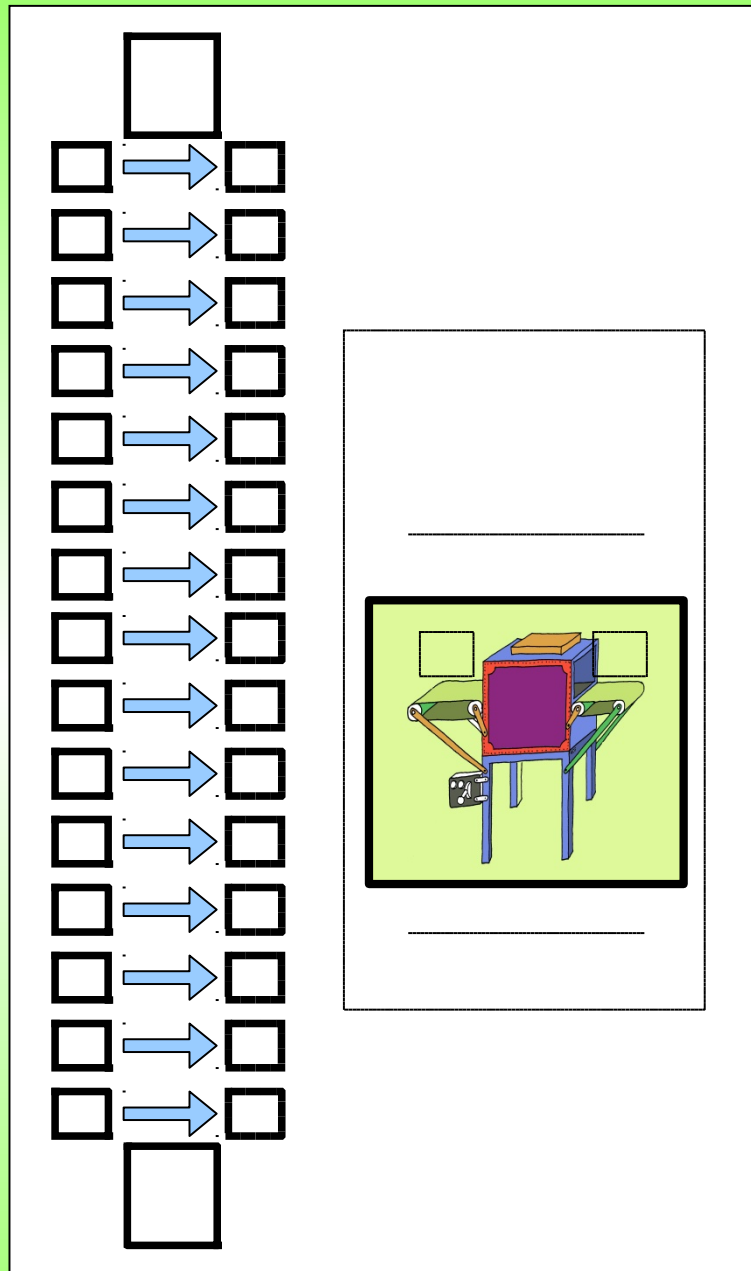


A Monkey Multiplier le pones los pies en los factores (7 y 8) ...



...y con las manos te dice que salen 56.

# El multiplicador deslizante





Este número →

1

2

3

Multiplicado por

2

3

4

5

6

7

8

9

El ábaco de Napier

	1	2	3
2			
3			
4			
5			
6			
7			
8			
9			

Indice	0	1	2	3	4	5	6	7	8	9	
1	0	0	1	2	3	4	5	6	7	8	9
2	0	0	2	4	6	8	0	2	4	6	8
1	1	1	3	5	7	9	1	3	5	7	9
3	0	0	3	6	9	2	5	8	1	4	7
1	1	1	4	7	0	3	6	9	2	5	8
2	2	2	5	8	1	4	7	0	3	6	9
4	0	0	4	8	2	6	0	4	8	2	6
1	1	1	5	9	3	7	1	5	9	3	7
2	2	2	6	0	4	8	2	6	0	4	8
3	3	3	7	1	5	9	3	7	1	5	9
5	0	0	5	0	5	0	5	0	5	0	5
1	1	1	6	1	6	1	6	1	6	1	6
2	2	2	7	2	7	2	7	2	7	2	7
3	3	3	8	3	8	3	8	3	8	3	8
4	4	4	9	4	9	4	9	4	9	4	9
6	0	0	6	2	8	4	0	6	2	8	4
1	1	1	7	3	9	5	1	7	3	9	5
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3	3	3	9	5	1	7	3	9	5	1	7
4	4	4	0	6	2	8	4	0	6	2	8
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7	0	0	7	4	1	8	5	2	9	6	3
1	1	1	8	5	2	9	6	3	0	7	4
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3	3	3	0	7	4	1	8	5	2	9	6
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5	5	5	2	9	6	3	0	7	4	1	8
6	6	6	3	0	7	4	1	8	5	2	9
8	0	0	8	6	4	2	0	8	6	4	2
1	1	1	9	7	5	3	1	9	7	5	3
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4	4	4	2	0	8	6	4	2	0	8	6
5	5	5	3	1	9	7	5	3	1	9	7
6	6	6	4	2	0	8	6	4	2	0	8
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9	0	0	9	8	7	6	5	4	3	2	1
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3	3	3	2	1	0	9	8	7	6	5	4
4	4	4	3	2	1	0	9	8	7	6	5
5	5	5	4	3	2	1	0	9	8	7	6
6	6	6	5	4	3	2	1	0	9	8	7
7	7	7	6	5	4	3	2	1	0	9	8
8	8	8	7	6	5	4	3	2	1	0	9

Máquina de multiplicar de Genaille - Lucas

La máquina de multiplicar  
De Genaille - Lucas  
Finales del XIX

# Máquina de dividir de Genaille - Lucas

Index	1	2	3	4	5	6	7	8	9	0	R
2	0 5	1 8	1 8	2 7	2 7	3 8	3 8	4 9	4 9	5 0	0 1
3	0 3 7	0 4 7	1 4 7	1 4 8	1 5 8	2 5 8	2 5 9	2 6 9	3 6 9	3 7 0	0 1 2
4	0 2 5 7	0 3 5 8	0 3 6 8	1 3 6 8	1 3 6 9	1 4 6 9	1 4 7 9	2 4 7 0	2 4 7 1	2 5 7 2	0 1 2 3
5	0 2 4 6 8	0 2 4 6 8	0 2 4 6 8	0 2 4 6 9	1 3 5 7 9	1 3 5 7 9	1 3 5 7 0	1 3 5 7 1	1 3 5 7 2	1 4 6 8 0	0 1 2 3 4
6	0 1 3 5 6 8	0 1 3 5 6 8	0 1 3 5 6 8	0 1 3 5 6 9	0 1 4 5 6 9	0 1 4 5 6 0	0 1 4 5 6 1	0 1 4 5 6 2	0 1 4 5 6 3	0 1 4 5 6 4	0 1 2 3 4 5
7	0 1 3 4 5 7 8	0 1 3 4 5 7 8	0 1 3 4 5 7 8	0 1 3 4 5 7 9	0 1 3 4 5 7 0	0 1 3 4 5 7 1	0 1 3 4 5 7 2	0 1 3 4 5 7 3	0 1 3 4 5 7 4	0 1 3 4 5 7 5	0 1 2 3 4 5 6
8	0 1 2 3 5 6 7 8	0 1 2 3 4 5 6 7 8	0 1 2 3 4 5 6 7 8	0 1 2 3 4 5 6 7 9	0 1 2 3 4 5 6 7 0	0 1 2 3 4 5 6 7 1	0 1 2 3 4 5 6 7 2	0 1 2 3 4 5 6 7 3	0 1 2 3 4 5 6 7 4	0 1 2 3 4 5 6 7 5	0 1 2 3 4 5 6 7
9	0 1 2 3 4 5 6 7 9	0 1 2 3 4 5 6 7 8	0 1 2 3 4 5 6 7 8	0 1 2 3 4 5 6 7 9	0 1 2 3 4 5 6 7 0	0 1 2 3 4 5 6 7 1	0 1 2 3 4 5 6 7 2	0 1 2 3 4 5 6 7 3	0 1 2 3 4 5 6 7 4	0 1 2 3 4 5 6 7 5	0 1 2 3 4 5 6 7 8

La máquina de dividir  
De Genaille - Lucas