Las fascinantes Matemáticas de los Mayas

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Universidad de Murcia

y

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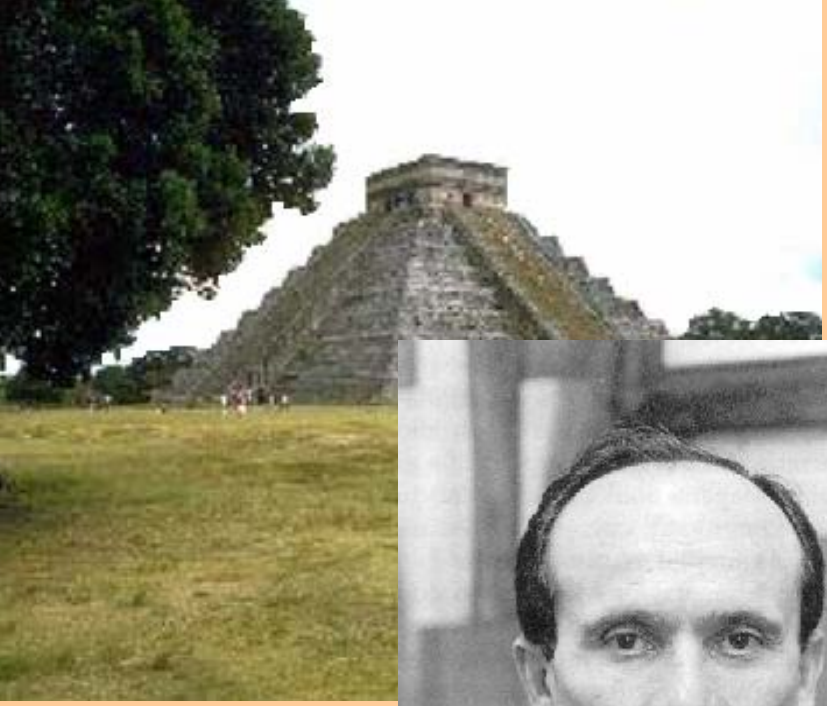
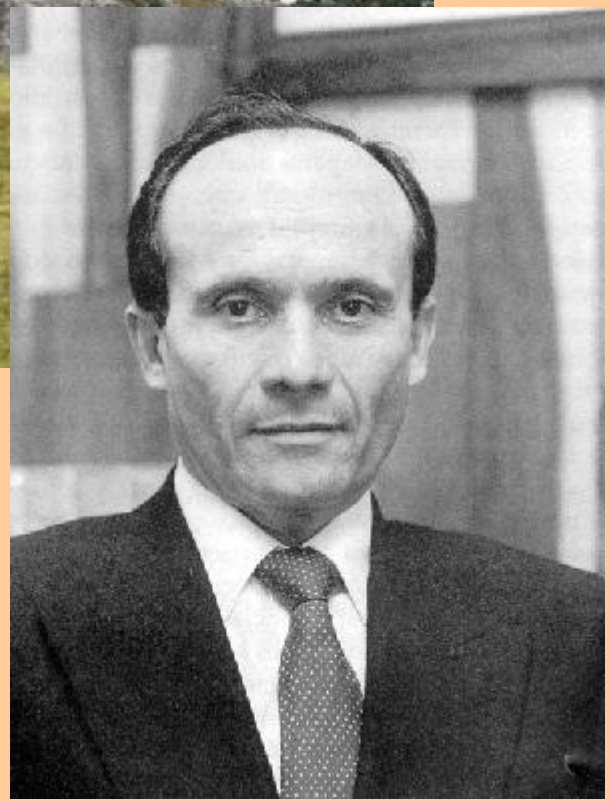


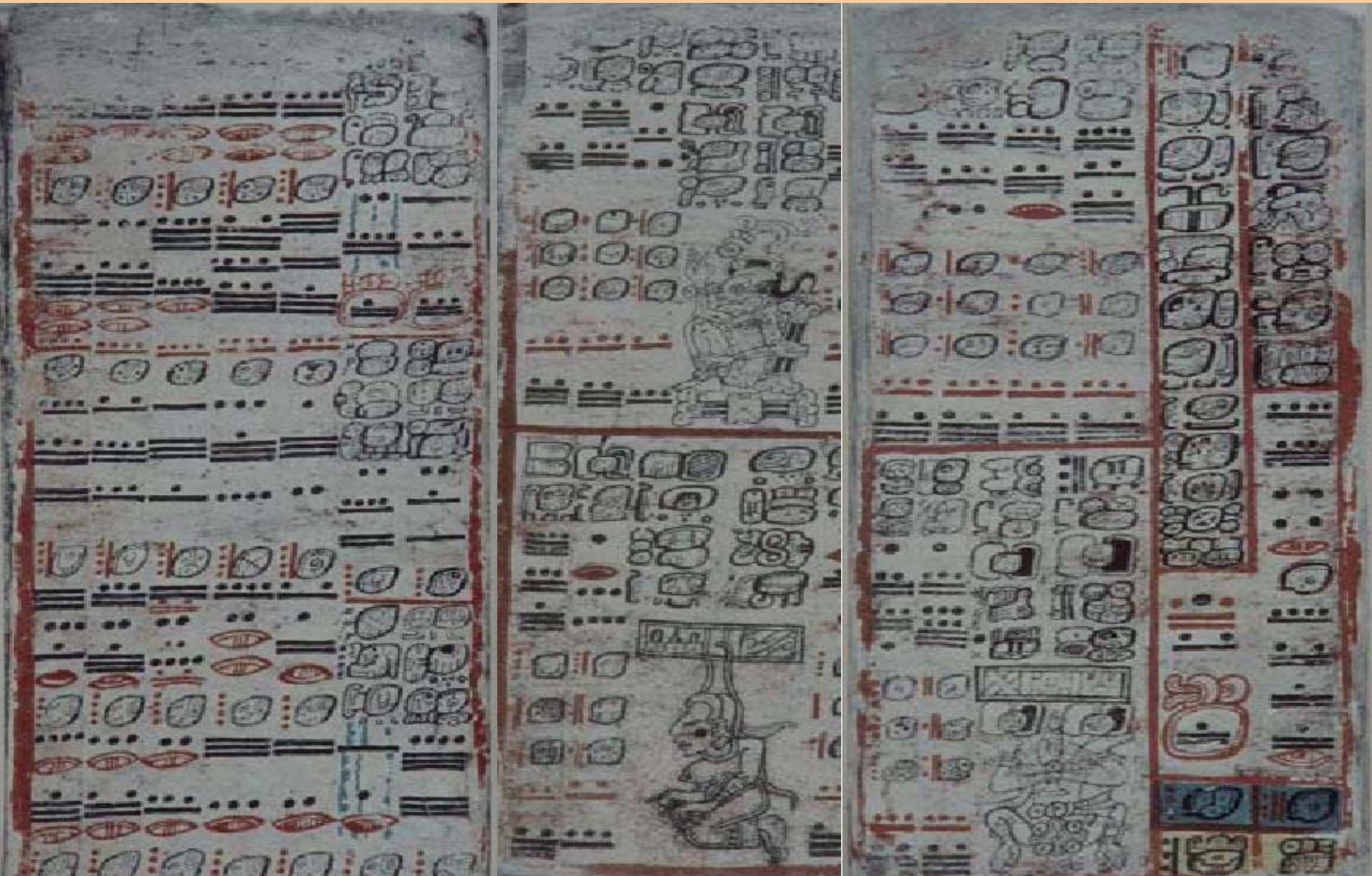


Esta conferencia la he tomado prestada de mi colega, el

Dr. L. F. Magaña, del Instituto de Física de la Universidad Nacional Autónoma de México (UNAM).
fernando@fisica.unam.mx

A quien quedaré eternamente agradecido por haberme descubierto este delicioso secreto de los Mayas.

Tres páginas del Código de Dresde, la mejor prueba de las Matemáticas de los Mayas



Los números de los Mayas

En nuestro sistema decimal:

1.897 = 1 x 1000 + 8 x 100 + 9 x 10 + 7 x 1

Hacemos operaciones horizontales

Los Mayas hacían lo mismo, pero verticalmente y empleando

puntos : ●

barras: —

caracolas (para el cero): 

Los números Mayas

1

2

3

4

5

6

7

8

9

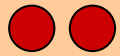
10

11

12

13

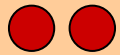
Ejemplos



23:

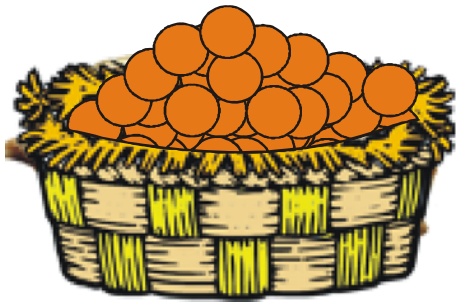
30:

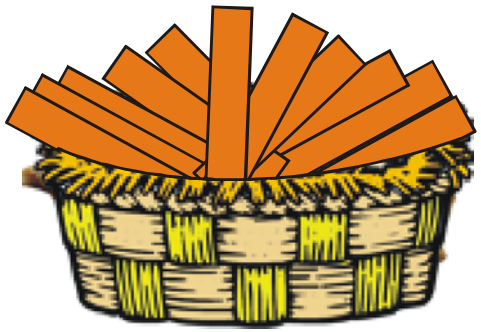
100:



2013:

2015





● ●	2	Miles	1000
	0	Centenas	100
●	1	Decenas	10
—	5	Unidades	1

¿Cómo escribir decimales? Se divide el espacio, verticalmente, en dos partes con una estrella. La parte superior corresponde a la parte entera y la inferior a la parte decimal. Ejemplo: 15,02

es

1 x 10
+
5 x 1
+
0 x 1/10
+
2 x 1/100

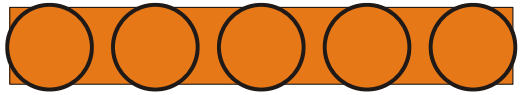
=

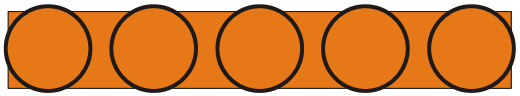
10
+
5
+
0
+
0,02

Igual a 15,02

Reglas que hay que recordar

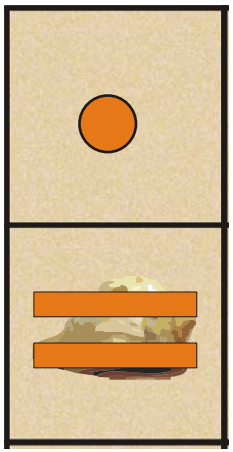
5 puntos se sustituyen por una barra





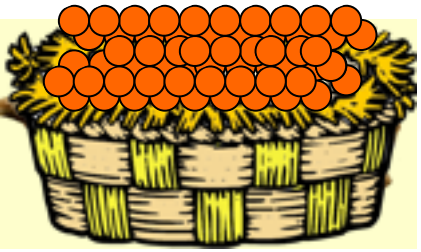
Una barra se sustituye por 5 puntos

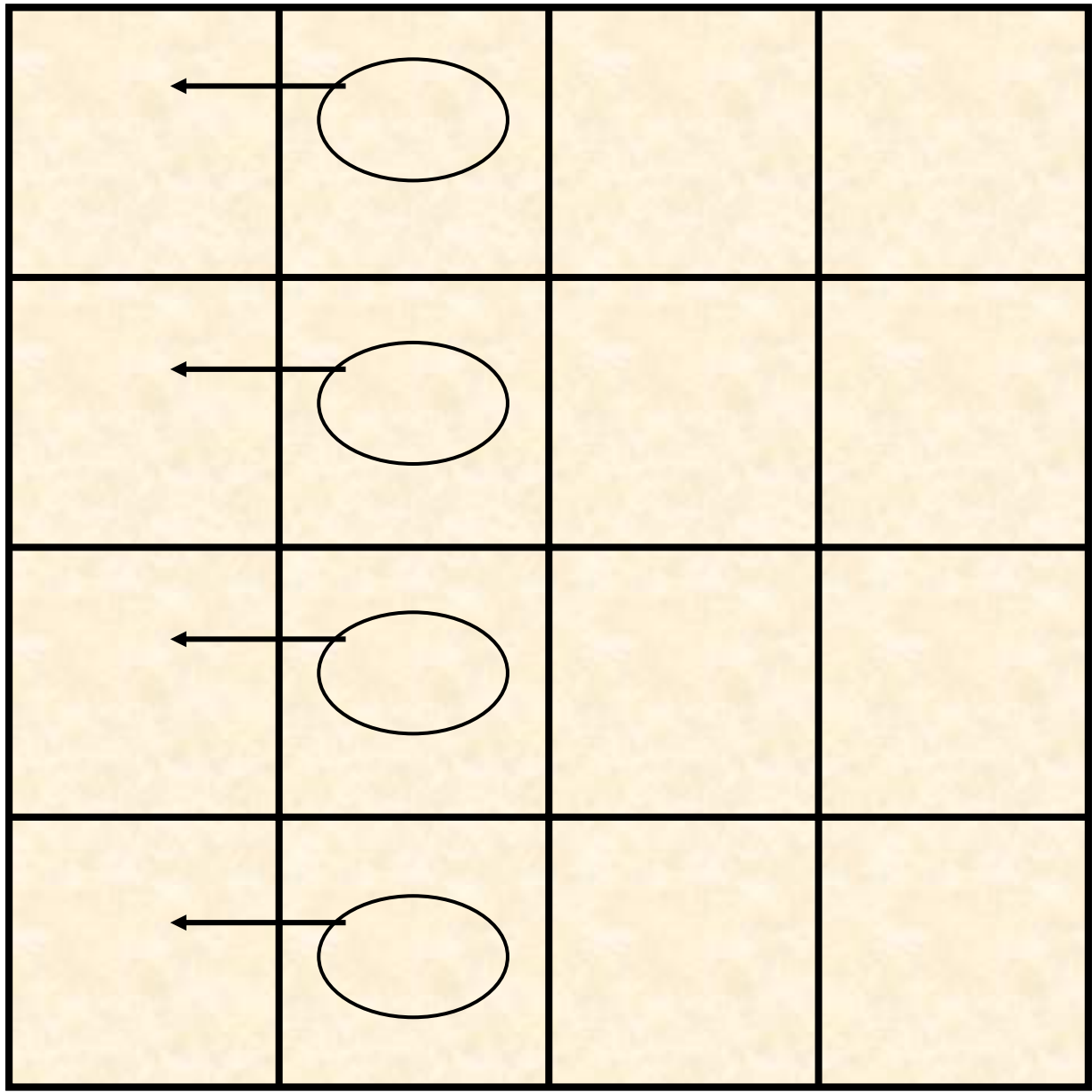
Un punto baja un nivel y se convierte en dos barras. Deja su lugar a una caracola.



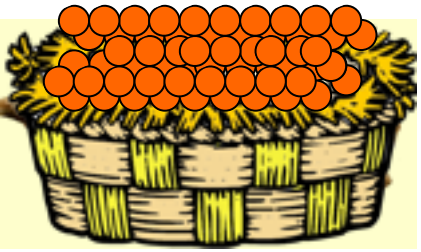
Dos barras suben un nivel para convertirse en un punto, dejando su lugar a una caracola.

SUMEMOS: 128 + 2571



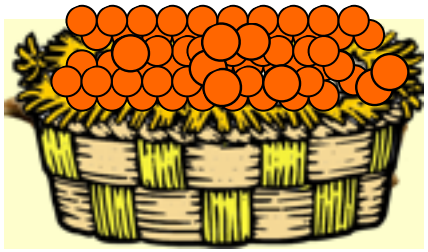


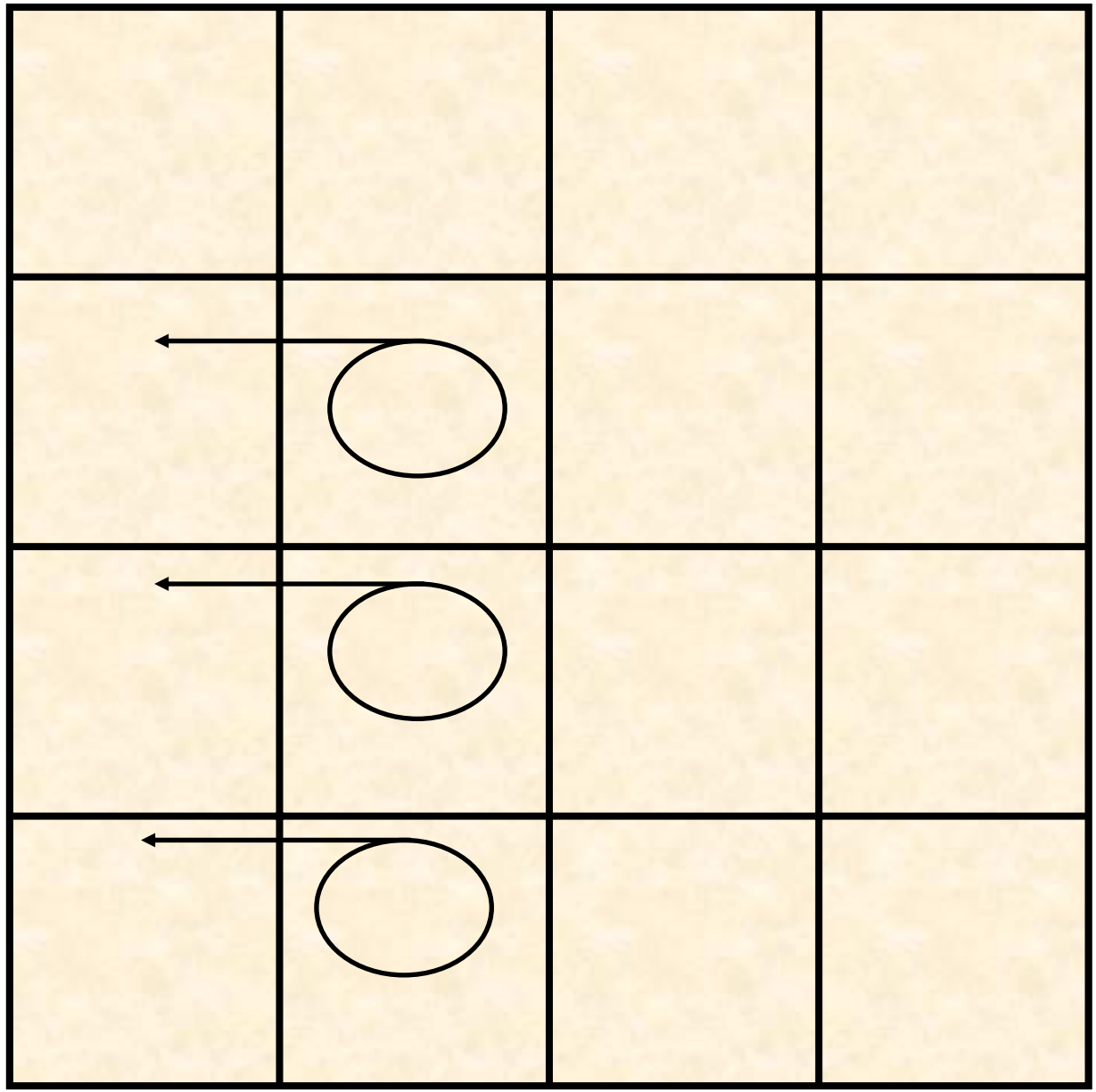
SUMEMOS: 128 + 2571



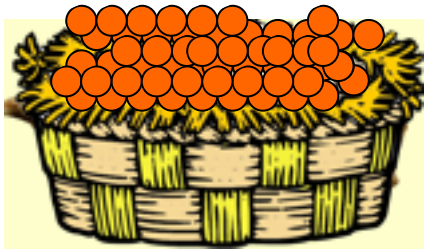
	2		
	6		
	9		
	9		

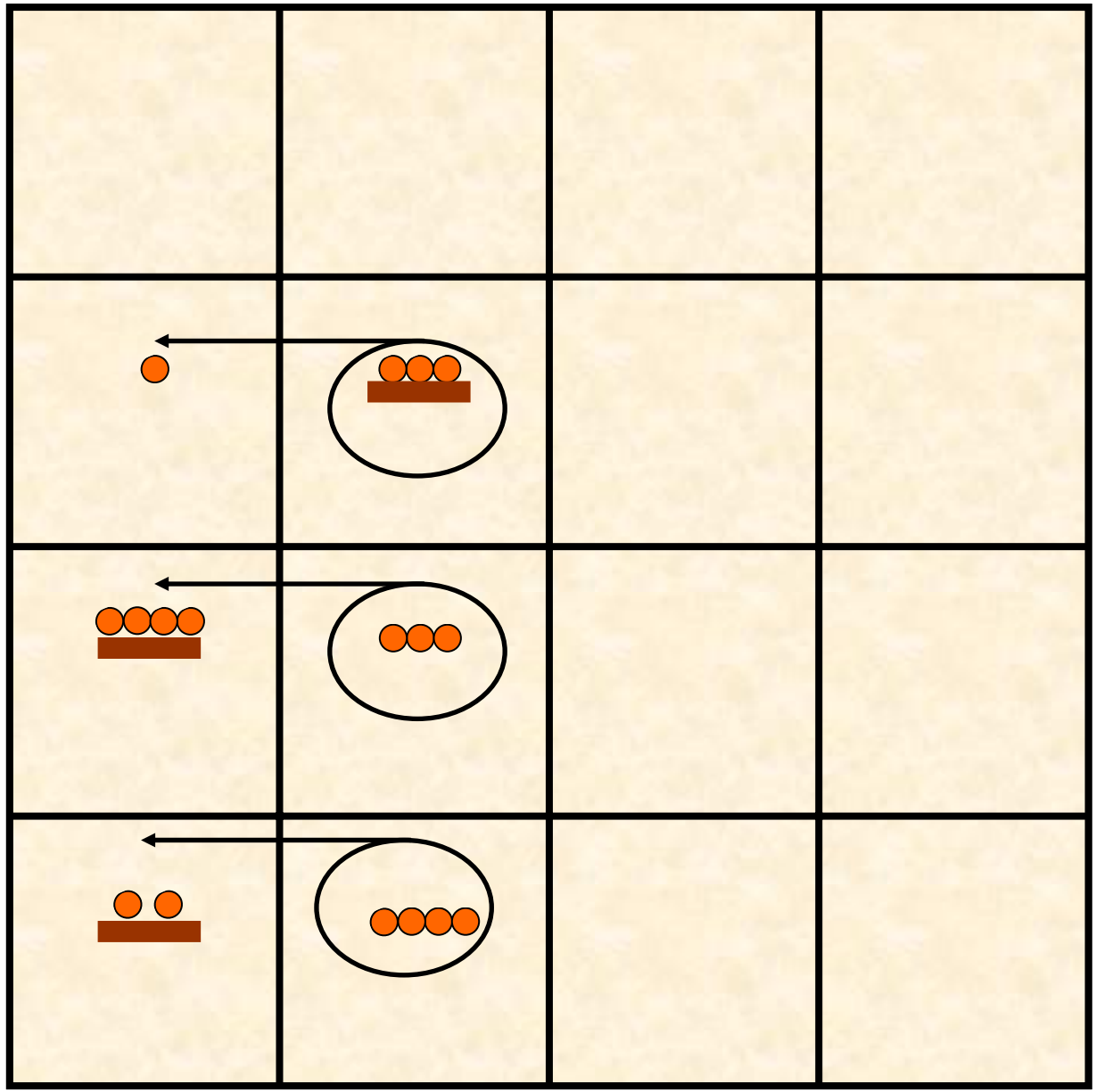
SUMEMOS: 197 + 834



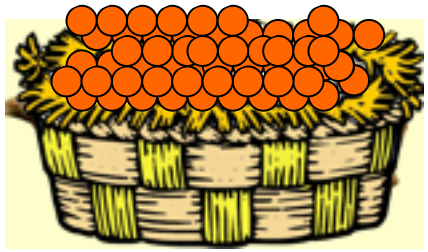


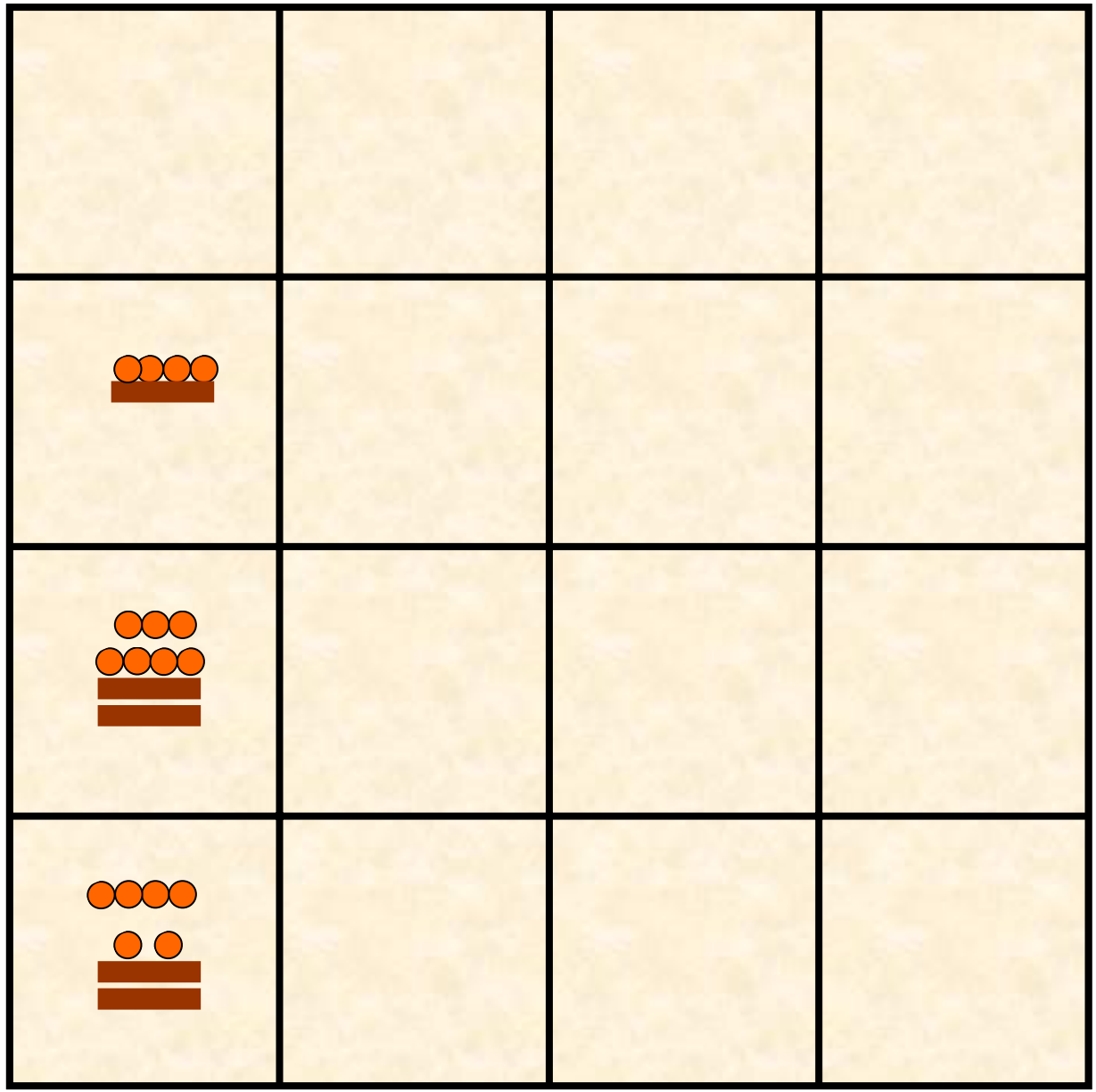
SUMEMOS: 197 + 834



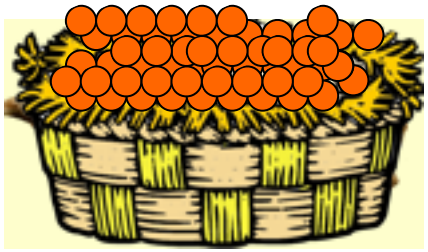


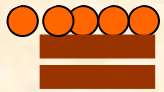
SUMEMOS: 197 + 834



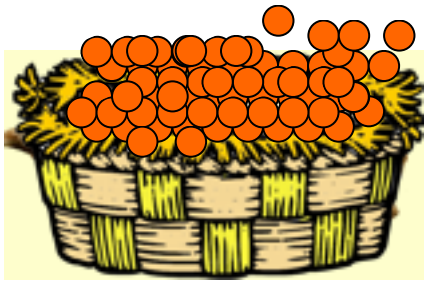


SUMA: 197 + 834 = 1031

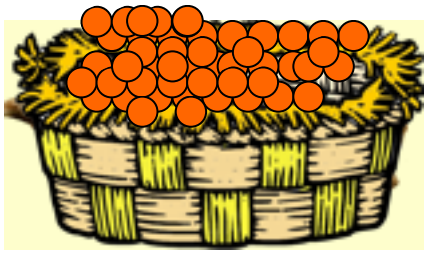


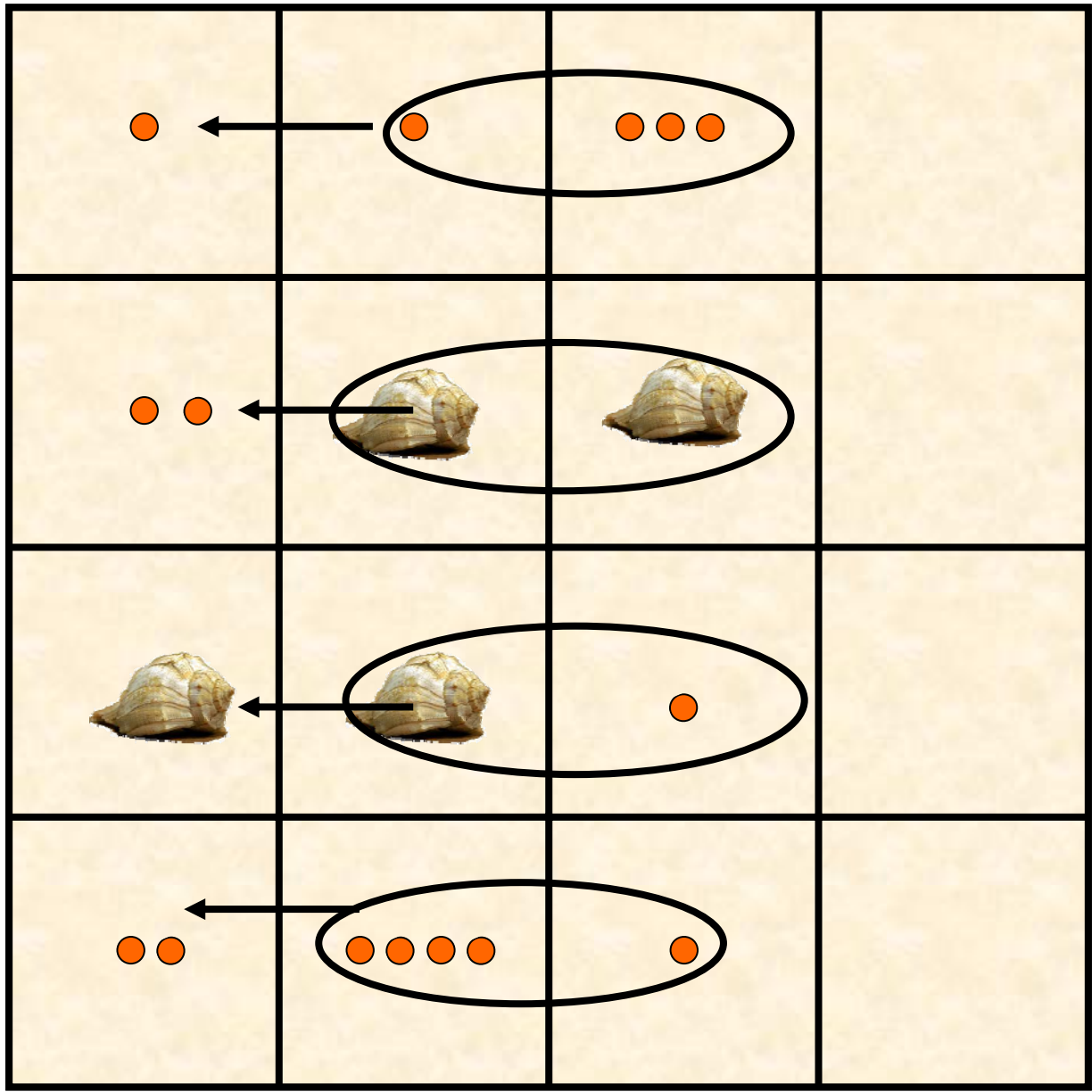
	1		
	0		
	3		
	1		

SUMA: 1202+1004+3011

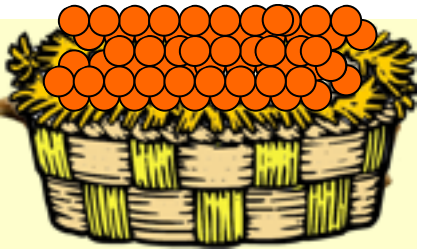


SUMA: 1202+1004+3011



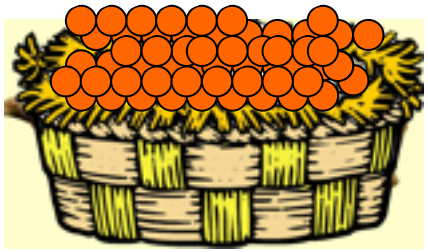


SUMA: 1202+1004+3011 = 5217

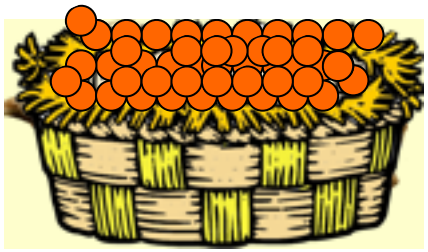


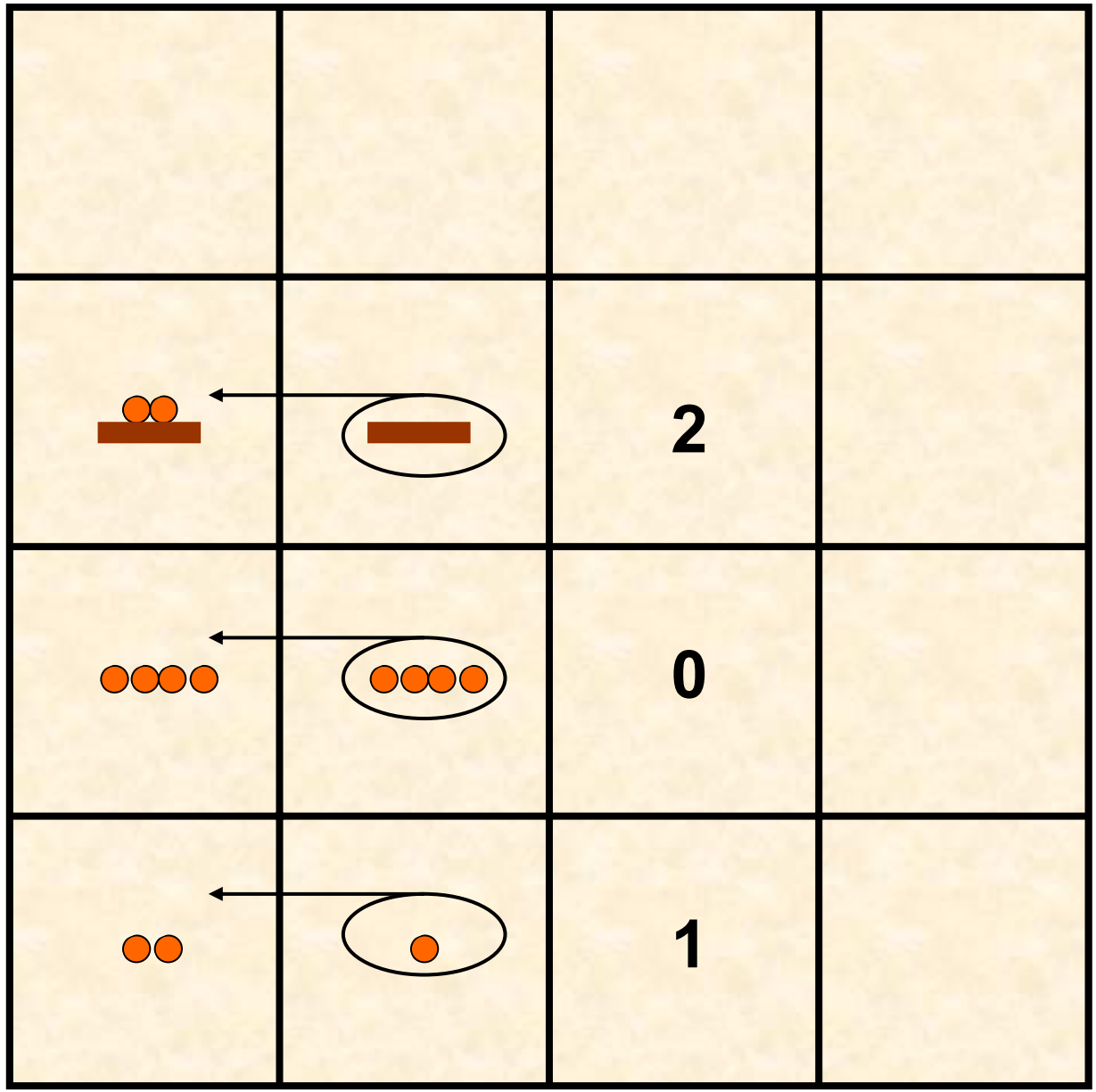
●●●●●	5		
●●	2		
●	1		
●●●●●●	7		

RESTAR: 742 - 541

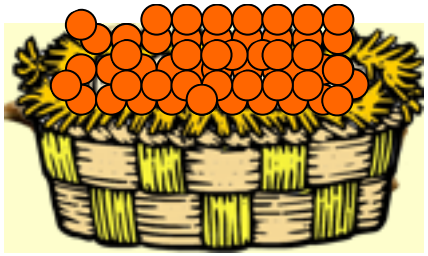


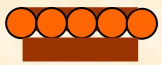
RESTAR: 742 - 541 = 201



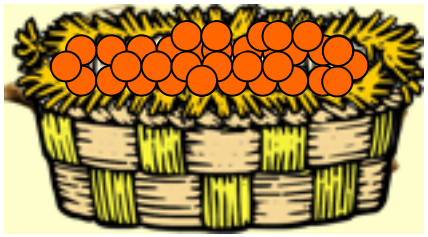


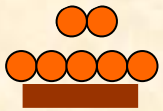
RESTAR : 862 - 643



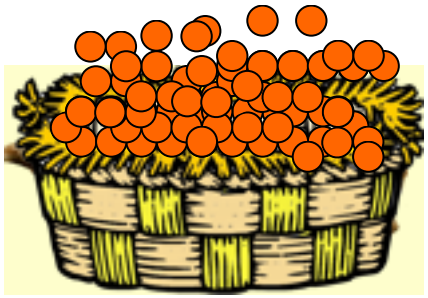


RESTAR : 862 - 643 = 219

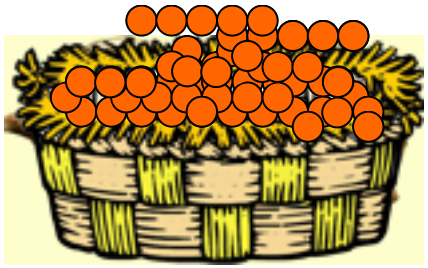


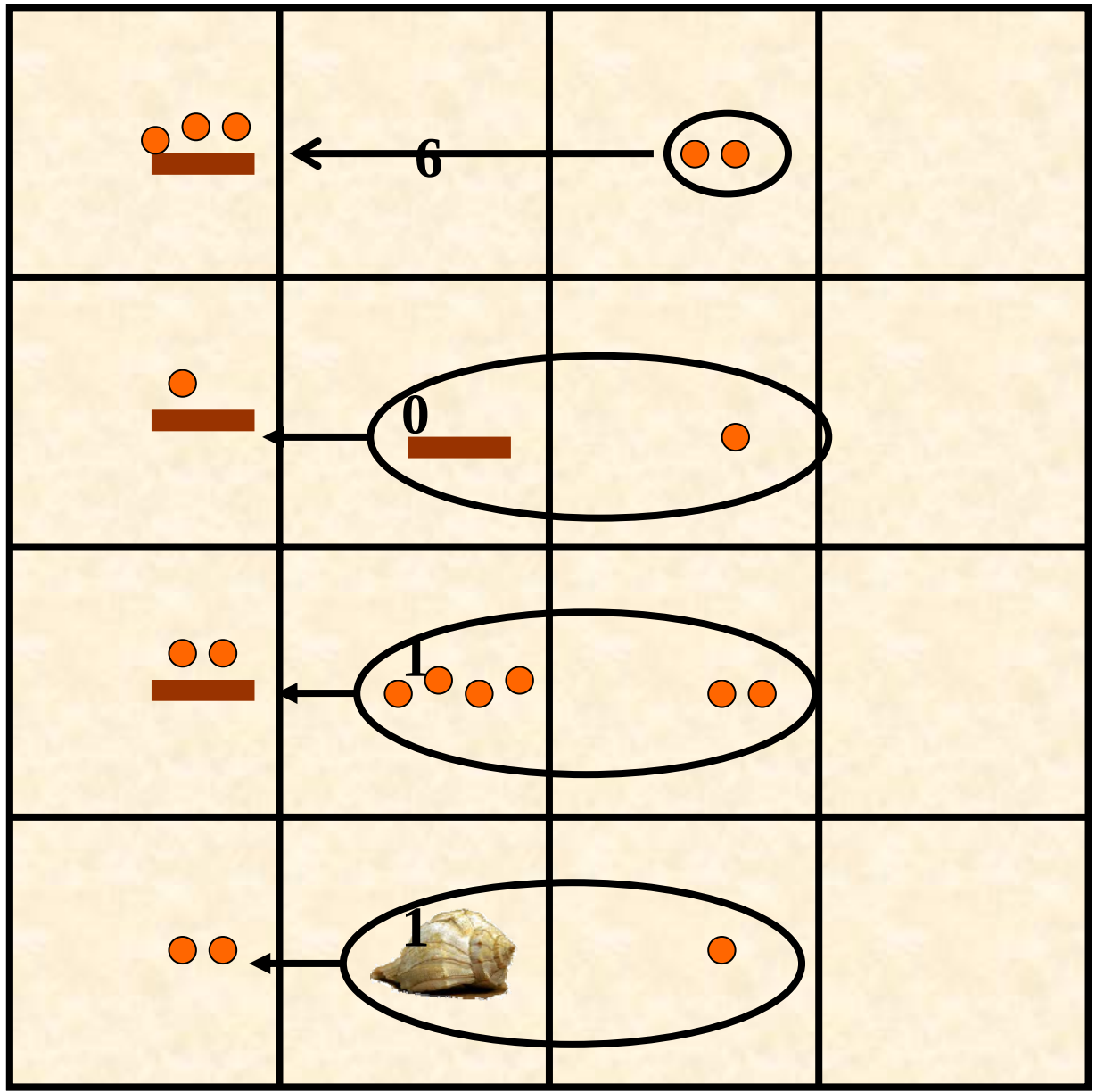
		2	
		1	
		9	

RESTAR : 8672 - 540 - 2121

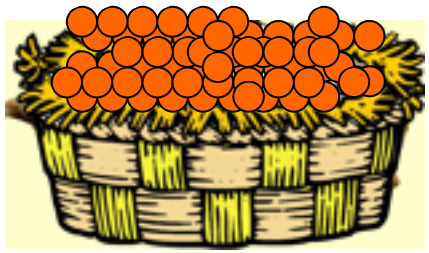


RESTAR : 8672 - 540 - 2121 = 6011

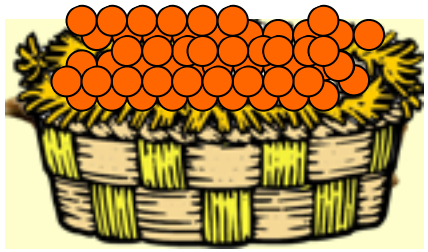




MULTIPLICAR: 215 x 121

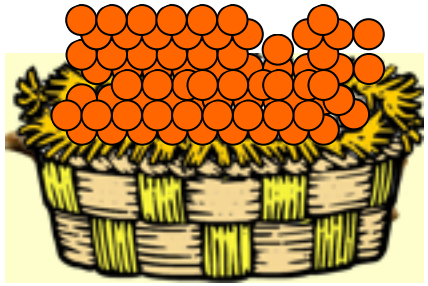


MULTIPLICAR: 215 x 121 = 26015

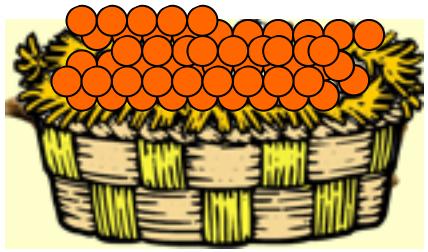


			2 6
			0 1
			5

MULTIPLICAR: 225 x 12



MULTIPLICAR: 225 x 12 = 2700



2

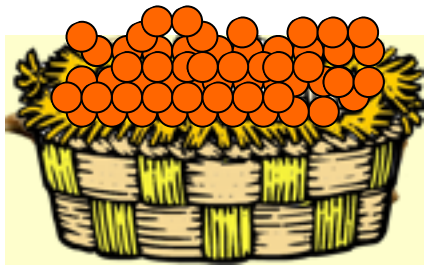
7

0

0

DIVIDIR: 180 ÷12 = 15

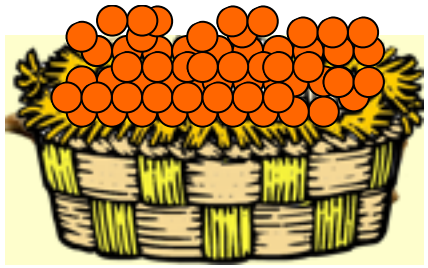
1 5

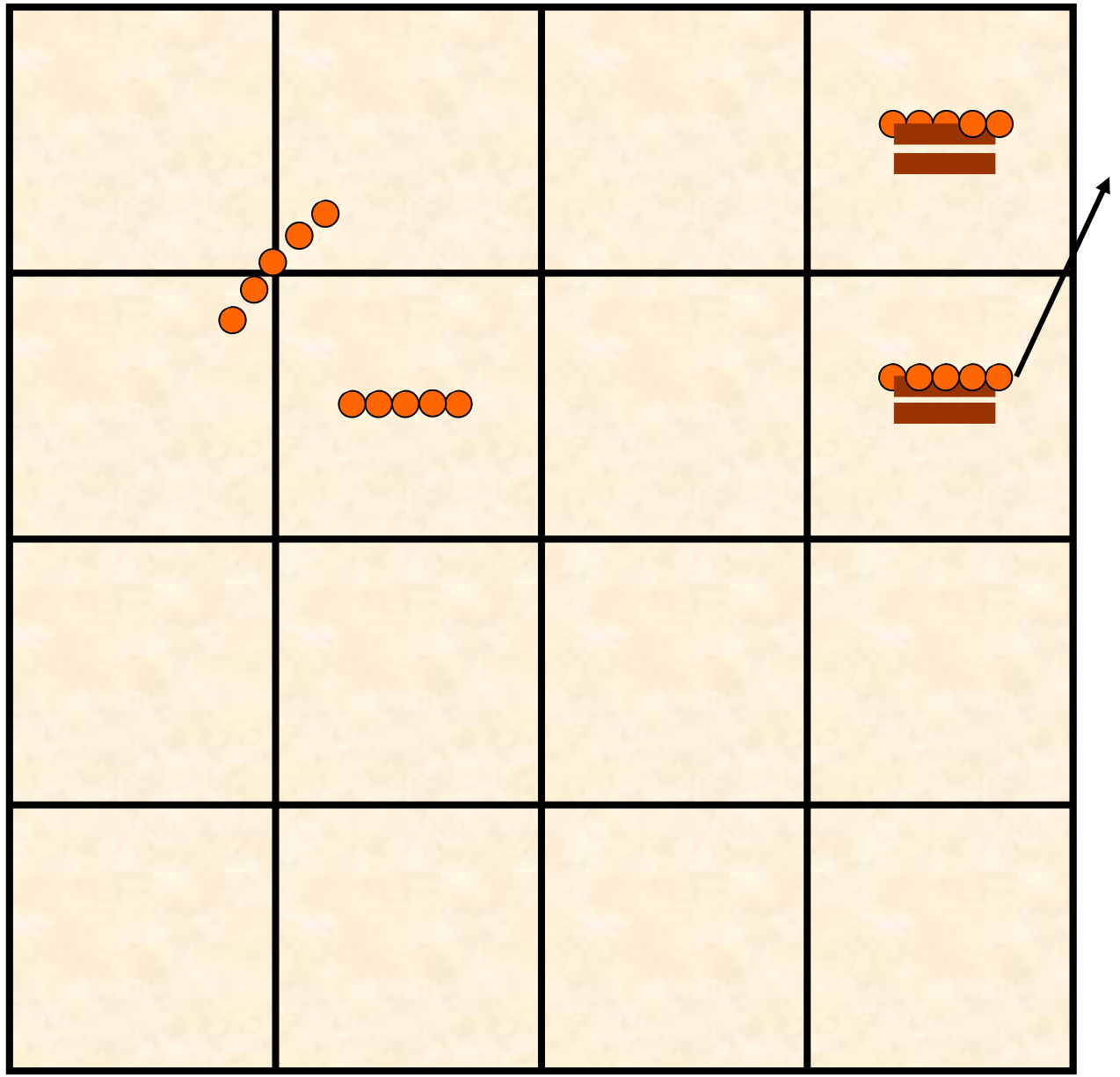


	−		
	=		

DIVIDIR:155÷11 = 14.09

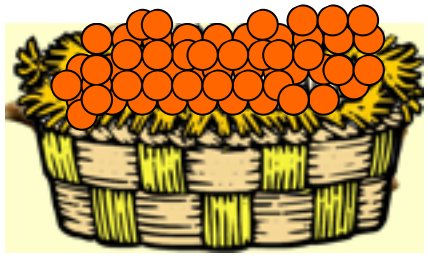
1 4 . 0 9…

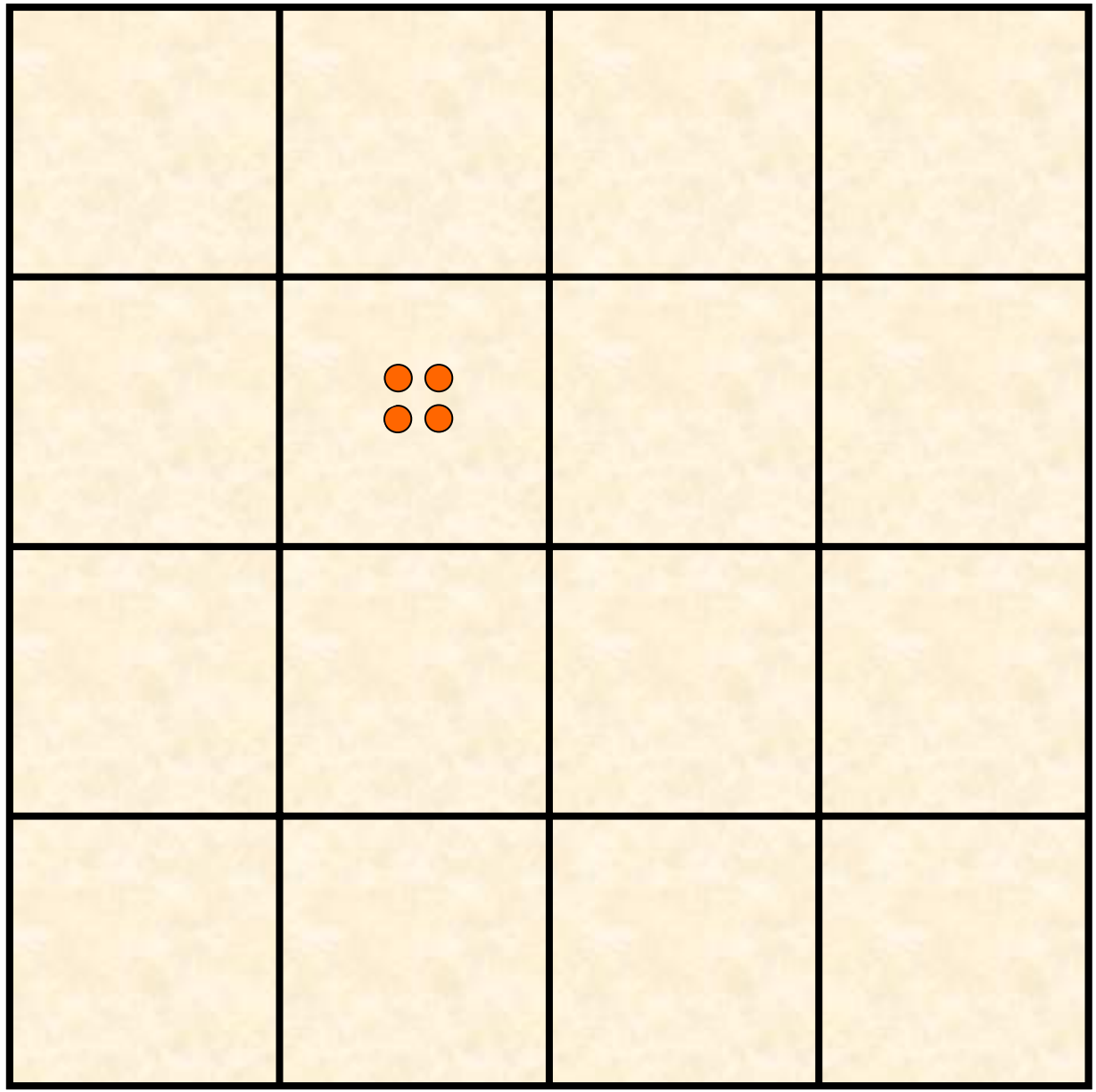




$\sqrt{144} = 12$

1 2





$\sqrt{2}$ = 1.414

1 . 4 1 4