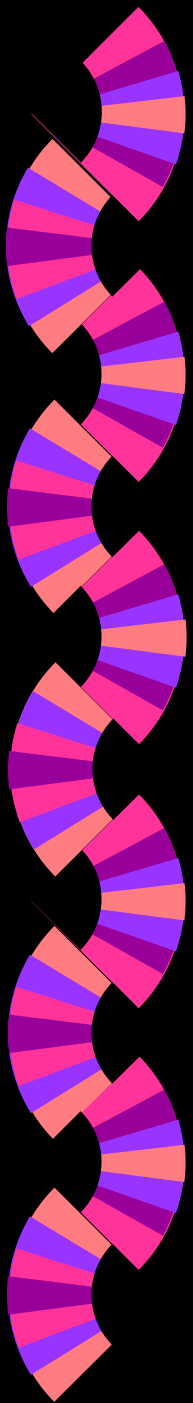


# LA MAGIA DE LOS NÚMEROS

**Antonio Arroyo Miguel**



**Asociación  
Castellana y Leonesa de  
Educación Matemática  
Miguel de Guzmán**



# Tabla del 9

|    |   |   |   |           |
|----|---|---|---|-----------|
| 1  | x | 9 | = | <b>9</b>  |
| 2  | x | 9 | = | <b>18</b> |
| 3  | x | 9 | = | <b>27</b> |
| 4  | x | 9 | = | <b>36</b> |
| 5  | x | 9 | = | <b>45</b> |
| 6  | x | 9 | = | <b>54</b> |
| 7  | x | 9 | = | <b>63</b> |
| 8  | x | 9 | = | <b>72</b> |
| 9  | x | 9 | = | <b>81</b> |
| 10 | x | 9 | = | <b>90</b> |



$$11 \times 9 = 99$$

$$12 \times 9 = 108$$

$$13 \times 9 = 117$$

$$14 \times 9 = 126$$

$$15 \times 9 = 135$$

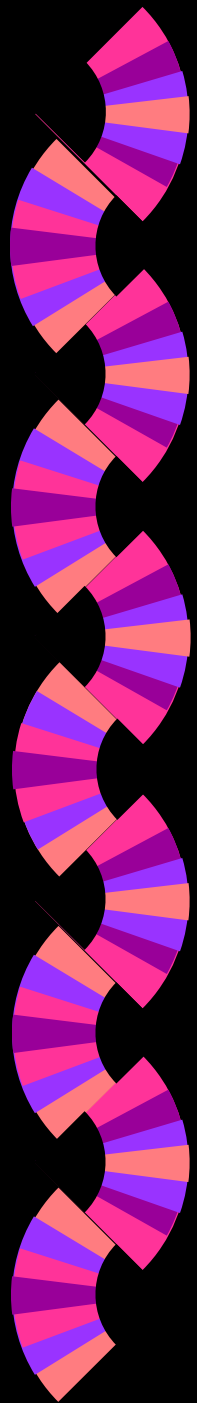
$$16 \times 9 = 144$$

$$17 \times 9 = 153$$

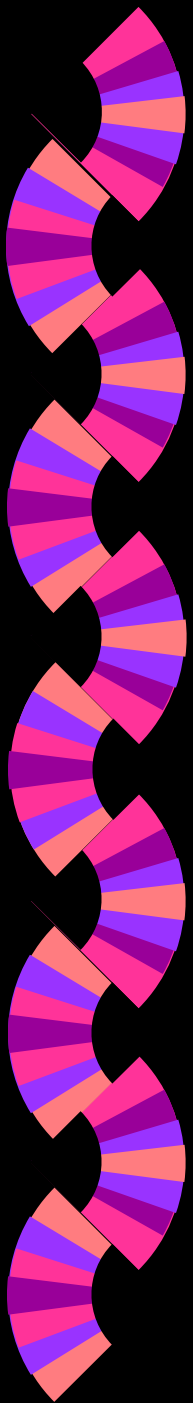
$$18 \times 9 = 162$$

$$19 \times 9 = 171$$

$$20 \times 9 = 180$$



|    |   |   |   |            |
|----|---|---|---|------------|
| 1  | x | 9 | = | <b>9</b>   |
| 2  | x | 9 | = | <b>18</b>  |
| 3  | x | 9 | = | <b>27</b>  |
| 4  | x | 9 | = | <b>36</b>  |
| 5  | x | 9 | = | <b>45</b>  |
| 6  | x | 9 | = | <b>54</b>  |
| 7  | x | 9 | = | <b>63</b>  |
| 8  | x | 9 | = | <b>72</b>  |
| 9  | x | 9 | = | <b>81</b>  |
| 10 | x | 9 | = | <b>90</b>  |
| 11 | x | 9 | = | <b>99</b>  |
| 12 | x | 9 | = | <b>108</b> |
| 13 | x | 9 | = | <b>117</b> |
| 14 | x | 9 | = | <b>126</b> |
| 15 | x | 9 | = | <b>135</b> |
| 16 | x | 9 | = | <b>144</b> |
| 17 | x | 9 | = | <b>153</b> |
| 18 | x | 9 | = | <b>162</b> |
| 19 | x | 9 | = | <b>171</b> |
| 20 | x | 9 | = | <b>180</b> |



**En la tabla el 9, la suma de cifras,  
siempre es 9.**

**Investiga que pasa con la sumade  
dígtos en otras talas de multiplicar.**



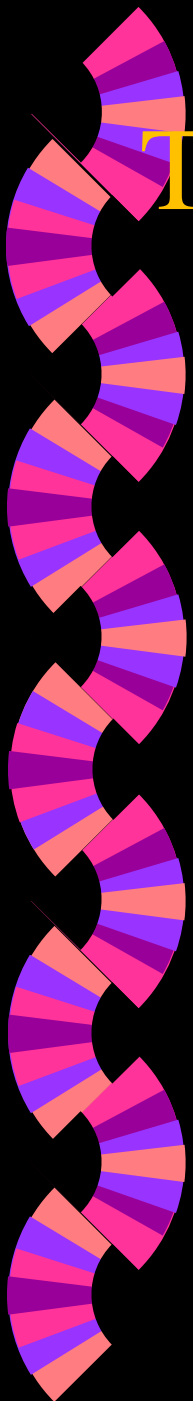
# Tabla del 99

|    |   |    |   |     |
|----|---|----|---|-----|
| 1  | x | 99 | = | 99  |
| 2  | x | 99 | = | 198 |
| 3  | x | 99 | = | 297 |
| 4  | x | 99 | = | 396 |
| 5  | x | 99 | = | 495 |
| 6  | x | 99 | = | 594 |
| 7  | x | 99 | = | 693 |
| 8  | x | 99 | = | 792 |
| 9  | x | 99 | = | 891 |
| 10 | x | 99 | = | 990 |



# Tabla del 99

|    |   |    |   |             |
|----|---|----|---|-------------|
| 10 | x | 99 | = | <b>990</b>  |
| 11 | x | 99 | = | <b>1089</b> |
| 12 | x | 99 | = | <b>1188</b> |
| 13 | x | 99 | = | <b>1287</b> |
| 14 | x | 99 | = | <b>1386</b> |
| 15 | x | 99 | = | <b>1485</b> |
| 16 | x | 99 | = | <b>1584</b> |
| 17 | x | 99 | = | <b>1683</b> |
| 18 | x | 99 | = | <b>1782</b> |
| 19 | x | 99 | = | <b>1881</b> |
| 20 | x | 99 | = | <b>1980</b> |



# Tabla del 99

|    |   |    |   |      |
|----|---|----|---|------|
| 1  | x | 99 | = | 99   |
| 2  | x | 99 | = | 198  |
| 3  | x | 99 | = | 297  |
| 4  | x | 99 | = | 396  |
| 5  | x | 99 | = | 495  |
| 6  | x | 99 | = | 594  |
| 7  | x | 99 | = | 693  |
| 8  | x | 99 | = | 792  |
| 9  | x | 99 | = | 891  |
| 10 | x | 99 | = | 990  |
| 11 | x | 99 | = | 1089 |
| 12 | x | 99 | = | 1188 |
| 13 | x | 99 | = | 1287 |
| 14 | x | 99 | = | 1386 |
| 15 | x | 99 | = | 1485 |
| 16 | x | 99 | = | 1584 |
| 17 | x | 99 | = | 1683 |
| 18 | x | 99 | = | 1782 |
| 19 | x | 99 | = | 1881 |
| 20 | x | 99 | = | 1980 |





# Tabla del 999

|    |   |     |   |              |
|----|---|-----|---|--------------|
| 1  | x | 999 | = | <b>999</b>   |
| 2  | x | 999 | = | <b>1998</b>  |
| 3  | x | 999 | = | <b>2997</b>  |
| 4  | x | 999 | = | <b>3996</b>  |
| 5  | x | 999 | = | <b>4995</b>  |
| 6  | x | 999 | = | <b>5994</b>  |
| 7  | x | 999 | = | <b>6993</b>  |
| 8  | x | 999 | = | <b>7992</b>  |
| 9  | x | 999 | = | <b>8991</b>  |
| 10 | x | 999 | = | <b>9990</b>  |
| 11 | x | 999 | = | <b>10989</b> |
| 12 | x | 999 | = | <b>11988</b> |
| 13 | x | 999 | = | <b>12987</b> |
| 14 | x | 999 | = | <b>13986</b> |
| 15 | x | 999 | = | <b>14985</b> |
| 16 | x | 999 | = | <b>15984</b> |
| 17 | x | 999 | = | <b>16983</b> |
| 18 | x | 999 | = | <b>17982</b> |
| 19 | x | 999 | = | <b>18981</b> |
| 20 | x | 999 | = | <b>19980</b> |



Investiga regularidades en las tablas de  
98, 998, 11, 101, ...

# Multiplicación por 11

Se coloca la cifra de las unidades y a continuación, de derecha a izquierda vamos sumando las cifras de 2 en 2, y por último ponemos la cifra de la izquierda:

$$367 \times 11 =$$

1. 7 **Unidades**
2.  $7+6 = 3$  me llevo 1 **Unidades + decenas**
3.  $6 + 3 + 1 = 0$  llevo 1 **Decenas + centenas**
4.  $3 + 1 = 4$  **Centenas**
5. Resultado 4037



# Multiplicación por 11

$$35 \times 11 = 3 (3+5) 5 = 385$$

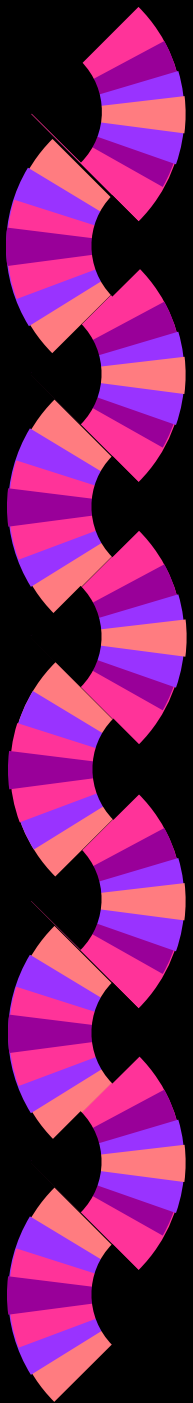
$$87 \times 11 = (8+1) (8+7) 7 = 957$$

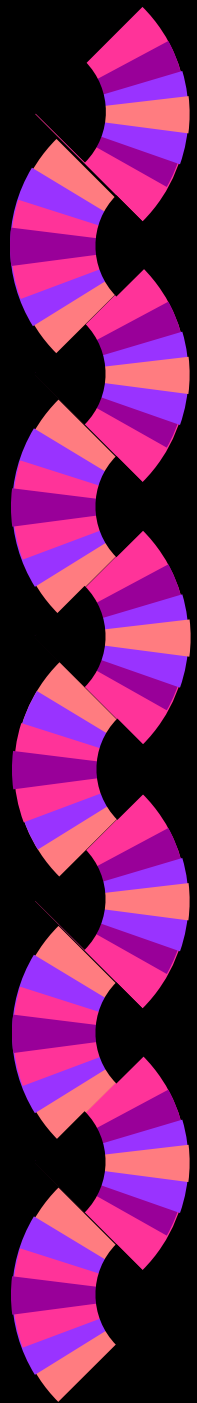
$$345 \times 11 = 3 (3+4) (4+5) 5 = 3795$$

$$586 \times 11 = (5+1) (5+8) (8+6) 6 = 6446$$

$$49371 \times 11 = (4+1) (9+4+1) (3+9+1) (7+3) (1+7) 1 =$$

**543081**





$$1 \times 8 + 1 =$$

$$12 \times 8 + 2 =$$

$$123 \times 8 + 3 =$$

$$1234 \times 8 + 4 =$$

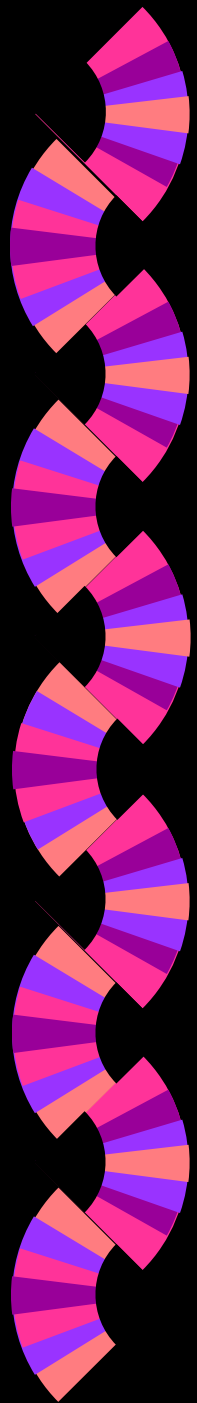
$$12345 \times 8 + 5 =$$

$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 =$$

$$123 \times 8 + 3 =$$

$$1234 \times 8 + 4 =$$

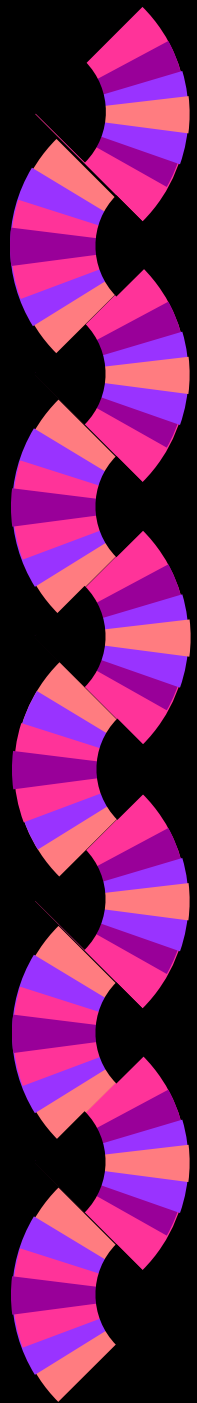
$$12345 \times 8 + 5 =$$

$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 =$$

$$1234 \times 8 + 4 =$$

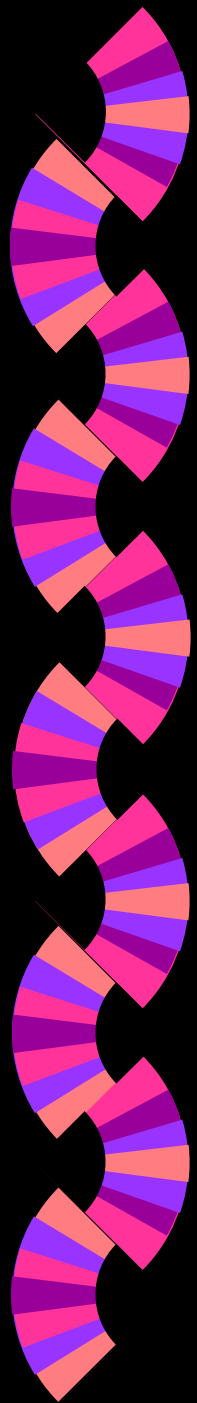
$$12345 \times 8 + 5 =$$

$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 =$$

$$12345 \times 8 + 5 =$$

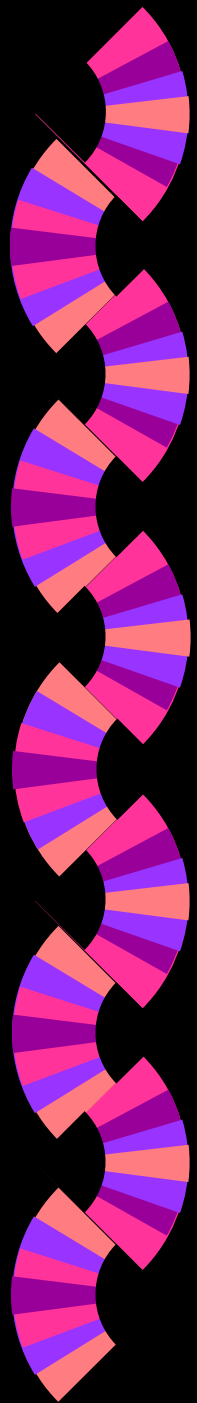
$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$





$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

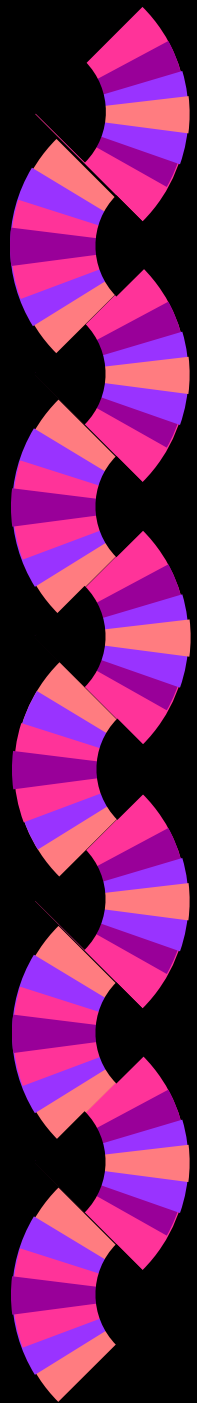
$$12345 \times 8 + 5 =$$

$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

$$12345 \times 8 + 5 = 98765$$

$$123456 \times 8 + 6 =$$

$$1234567 \times 8 + 7 =$$

$$12345678 \times 8 + 8 =$$

$$123456789 \times 8 + 9 =$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

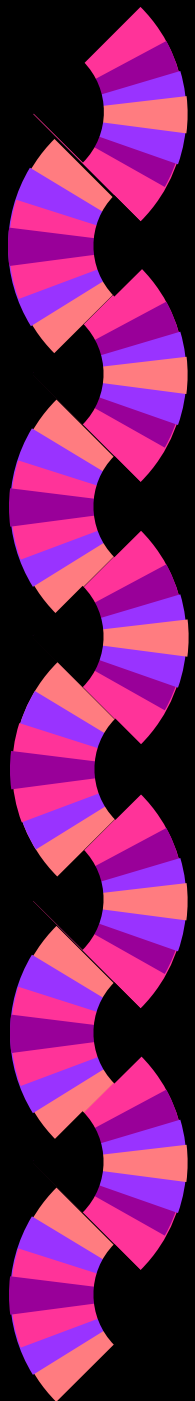
$$12345 \times 8 + 5 = 98765$$

$$123456 \times 8 + 6 = 987654$$

$$1234567 \times 8 + 7 = 9876543$$

$$12345678 \times 8 + 8 = 98765432$$

$$123456789 \times 8 + 9 = 987654321$$



$$1 \times 8 + 1 = 9$$

$$12 \times 8 + 2 = 98$$

$$123 \times 8 + 3 = 987$$

$$1234 \times 8 + 4 = 9876$$

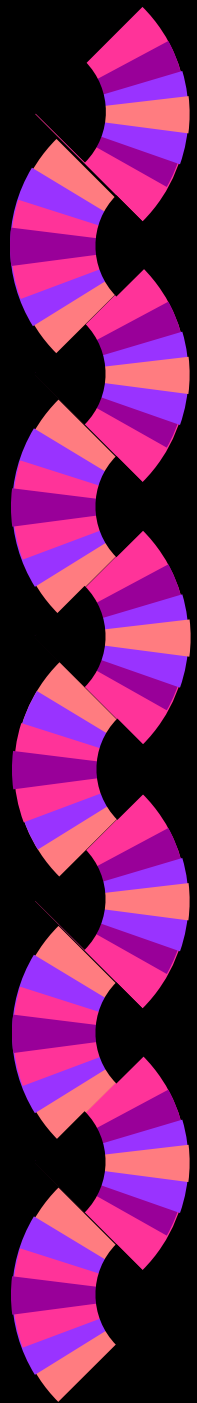
$$12345 \times 8 + 5 = 98765$$

$$123456 \times 8 + 6 = 987654$$

$$1234567 \times 8 + 7 = 9876543$$

$$12345678 \times 8 + 8 = 98765432$$

$$123456789 \times 8 + 9 = 987654321$$



$$1 \times 9 + 2 =$$

$$12 \times 9 + 3 =$$

$$123 \times 9 + 4 =$$

$$1234 \times 9 + 5 =$$

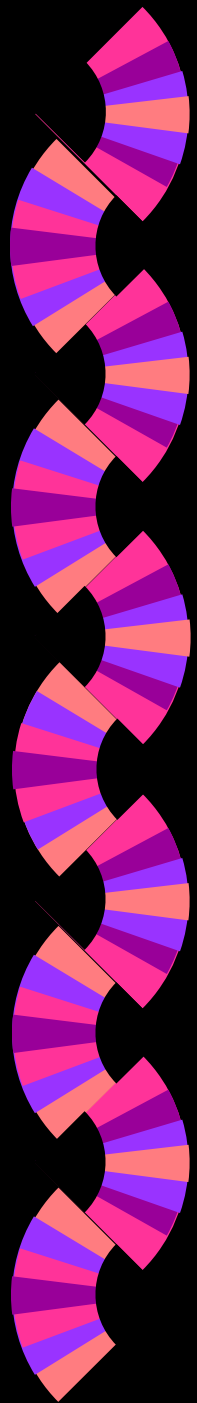
$$12345 \times 9 + 6 =$$

$$123456 \times 9 + 7 =$$

$$1234567 \times 9 + 8 =$$

$$12345678 \times 9 + 9 =$$

$$123456789 \times 9 + 10 =$$



$$1 \times 9 + 2 = 11$$

$$12 \times 9 + 3 =$$

$$123 \times 9 + 4 =$$

$$1234 \times 9 + 5 =$$

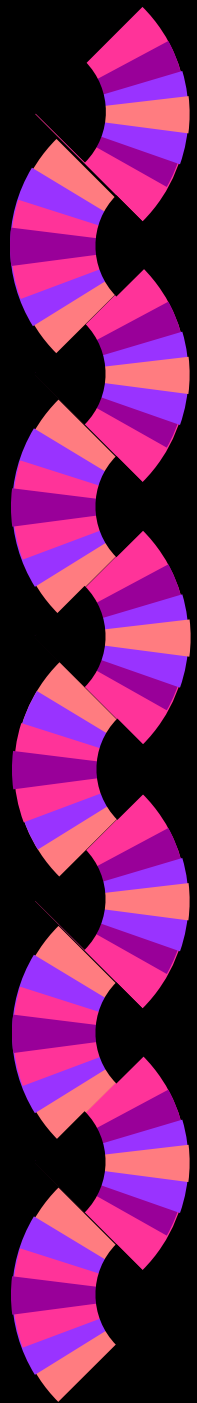
$$12345 \times 9 + 6 =$$

$$123456 \times 9 + 7 =$$

$$1234567 \times 9 + 8 =$$

$$12345678 \times 9 + 9 =$$

$$123456789 \times 9 + 10 =$$



$$1 \times 9 + 2 = 11$$

$$12 \times 9 + 3 = 111$$

$$123 \times 9 + 4 =$$

$$1234 \times 9 + 5 =$$

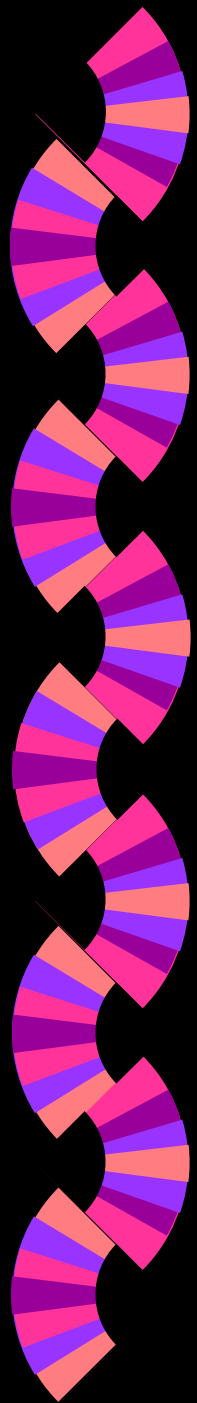
$$12345 \times 9 + 6 =$$

$$123456 \times 9 + 7 =$$

$$1234567 \times 9 + 8 =$$

$$12345678 \times 9 + 9 =$$

$$123456789 \times 9 + 10 =$$



$$1 \times 9 + 2 = 11$$

$$12 \times 9 + 3 = 111$$

$$123 \times 9 + 4 = 1111$$

$$1234 \times 9 + 5 =$$

$$12345 \times 9 + 6 =$$

$$123456 \times 9 + 7 =$$

$$1234567 \times 9 + 8 =$$

$$12345678 \times 9 + 9 =$$

$$123456789 \times 9 + 10 =$$





$$1 \times 9 + 2 = 11$$

$$12 \times 9 + 3 = 111$$

$$123 \times 9 + 4 = 1111$$

$$1234 \times 9 + 5 = 11111$$

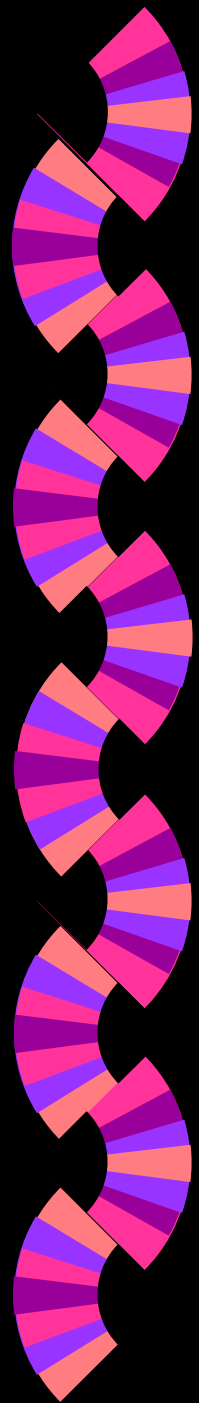
$$12345 \times 9 + 6 = 111111$$

$$123456 \times 9 + 7 = 1111111$$

$$1234567 \times 9 + 8 = 11111111$$

$$12345678 \times 9 + 9 = 111111111$$

$$123456789 \times 9 + 10 = 1111111111$$



$$9 \times 9 + 7 =$$

$$98 \times 9 + 6 =$$

$$987 \times 9 + 5 =$$

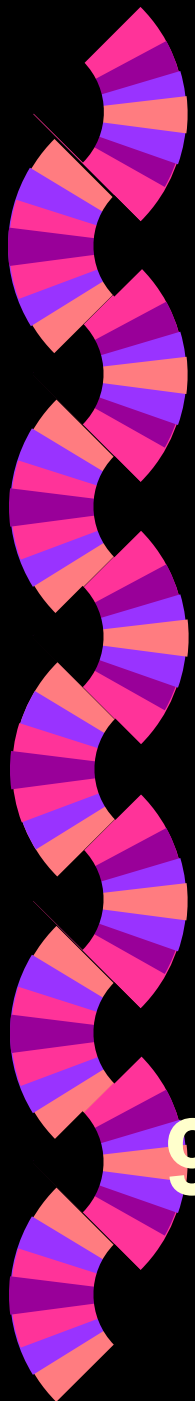
$$9876 \times 9 + 4 =$$

$$98765 \times 9 + 3 =$$

$$987654 \times 9 + 2 =$$

$$9876543 \times 9 + 1 =$$

$$98765432 \times 9 + 0 =$$



$$9 \times 9 + 7 = 88$$

$$98 \times 9 + 6 = 888$$

$$987 \times 9 + 5 = 8888$$

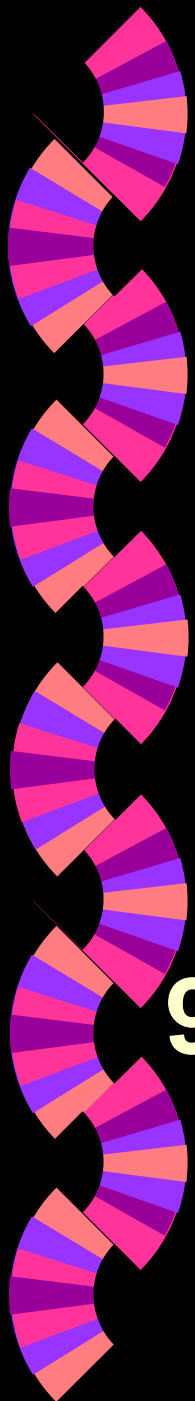
$$9876 \times 9 + 4 = 88888$$

$$98765 \times 9 + 3 = 888888$$

$$987654 \times 9 + 2 = 8888888$$

$$9876543 \times 9 + 1 = 88888888$$

$$98765432 \times 9 + 0 = 888888888$$



$$9 \times 9 + 7 = 88$$

$$98 \times 9 + 6 = 888$$

$$987 \times 9 + 5 = 8888$$

$$9876 \times 9 + 4 = 88888$$

$$98765 \times 9 + 3 = 888888$$

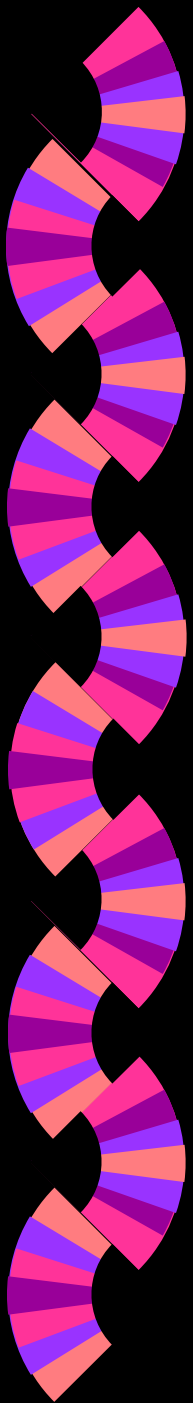
$$987654 \times 9 + 2 = 8888888$$

$$9876543 \times 9 + 1 = 88888888$$

$$98765432 \times 9 + 0 = 888888888$$

$$987654321 \times 9 + (-1) =$$

$$8888888888$$



$$1 \times 1 =$$

$$11 \times 11 =$$

$$111 \times 111 =$$

$$1111 \times 1111 =$$

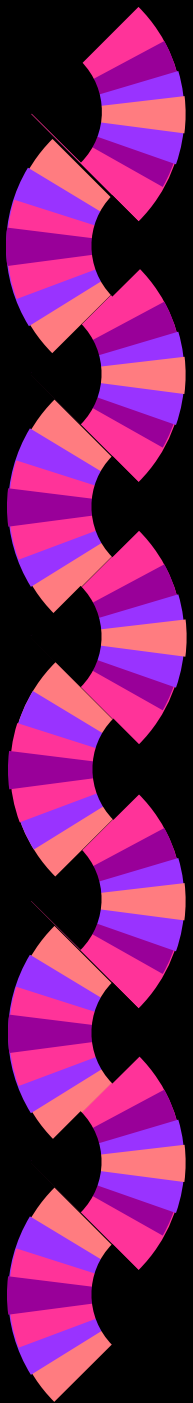
$$11111 \times 11111 =$$

$$111111 \times 111111 =$$

$$1111111 \times 1111111 =$$

$$11111111 \times 11111111 =$$

$$111111111 \times 111111111 =$$



$$1 \times 1 = 1$$

$$11 \times 11 = 121$$

$$111 \times 111 = 12321$$

$$1111 \times 1111 = 1234321$$

$$11111 \times 11111 =$$

$$111111 \times 111111 =$$

$$1111111 \times 1111111 =$$

$$11111111 \times 11111111 =$$

$$111111111 \times 111111111 =$$



$$1 \times 1 = 1$$

$$11 \times 11 = 121$$

$$111 \times 111 = 12321$$

$$1111 \times 1111 = 1234321$$

$$11111 \times 11111 = 123454321$$

$$111111 \times 111111 = 12345654321$$

$$1111111 \times 1111111 = 1234567654321$$

$$11111111 \times 11111111 = 123456787654321$$

$$111111111 \times 111111111 = 12345678987654321$$



## *El misterioso 12345679*

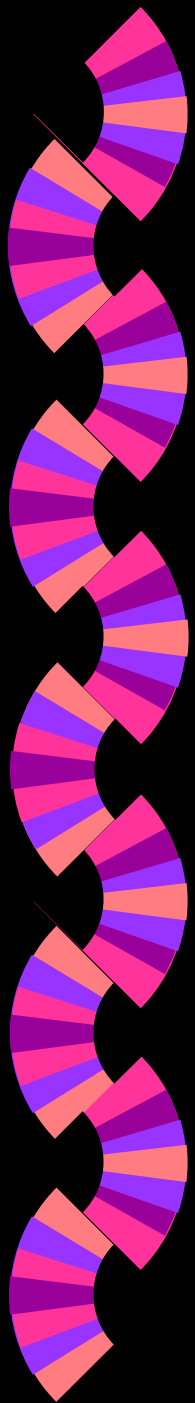
- ¿Cuál es el número que más te gusta?
- Multiplica ese número por 9
- Multiplica el resultado por 12345679

y el resultado deberá gustarte





# Lectura



- Número de tres cifras



- El clamoroso ...

- 

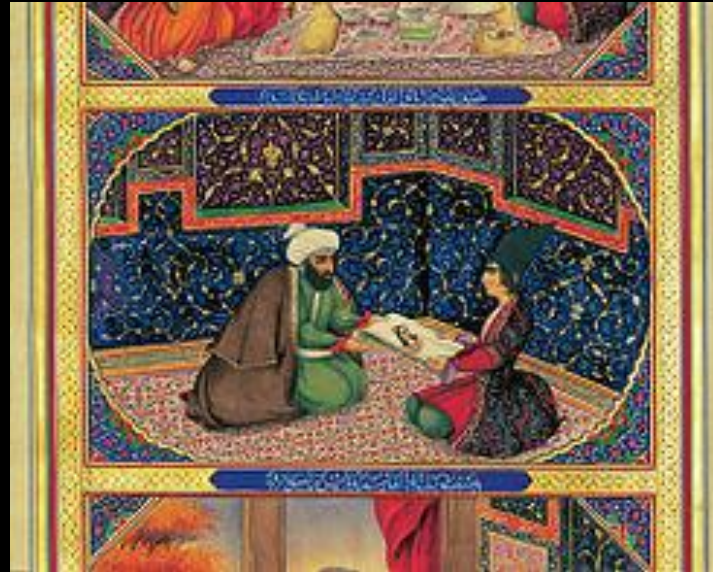
(2)

# *El Número de Scheherazade*



# *El Número de Scheherazade*

1001



¿Qué tiene de interesante el número 1001?

# *El Número de Scheherazade*

1001

¿Qué tiene de interesante el número 1001?

1..

2.



# *El Número de Scheherazade*

1001

¿Qué tiene de interesante el número 1001?



1.  $547 \times 1001 = 547547$

2.  $1001 = 7 \times 11 \times 13$

# *El Número 10101*

¿Qué tiene de interesante el número 10101?



1.  $54 \times 10101 = 545454$

2.  $10101 = 3 \times 7 \times 13 \times 37$



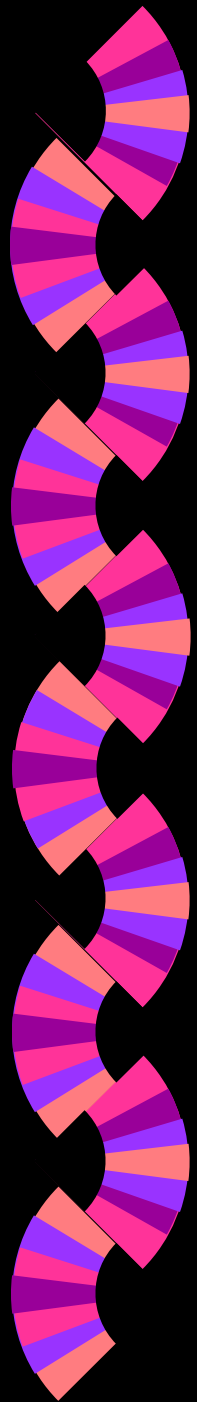


*10101*

Investiga el número 10101 y  
trata de crear un truco de magia  
parecido al anterior.

Otro número interesante puede ser:

**101001**

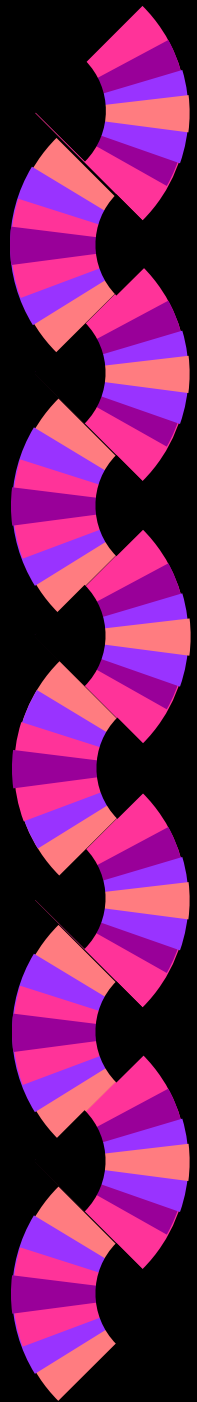


- Cifra Adivinada

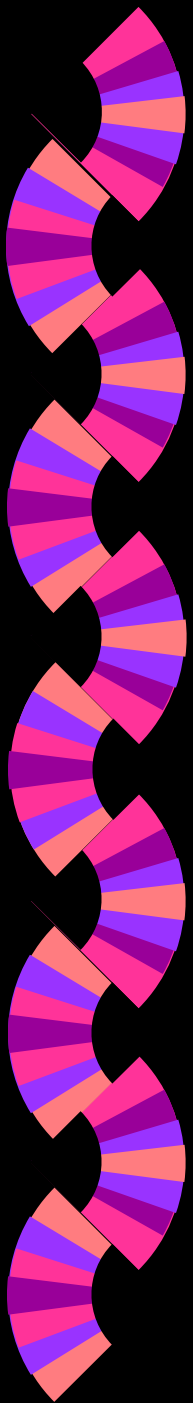
- ¿Coincidencia?



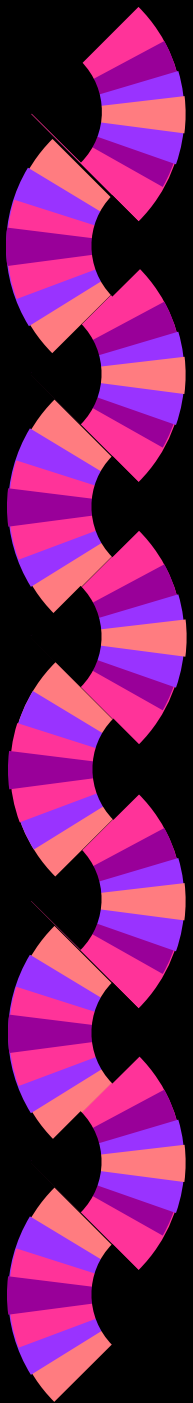
- Cifra Adivinada con  
Calculadora



- Cifra Adivinada
  - (0 al 9)



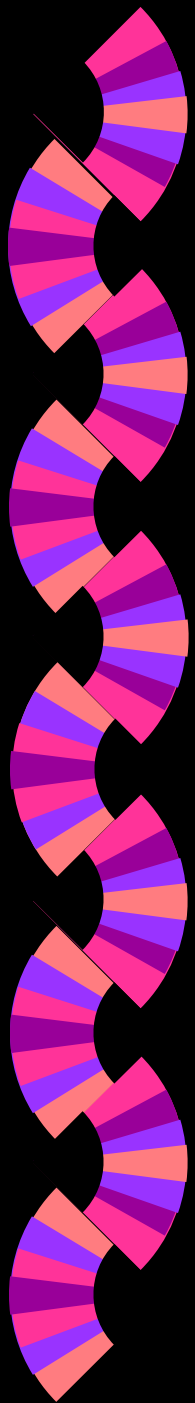
# □ Multiplicación y Suma



# □ Suma en un cuadrado

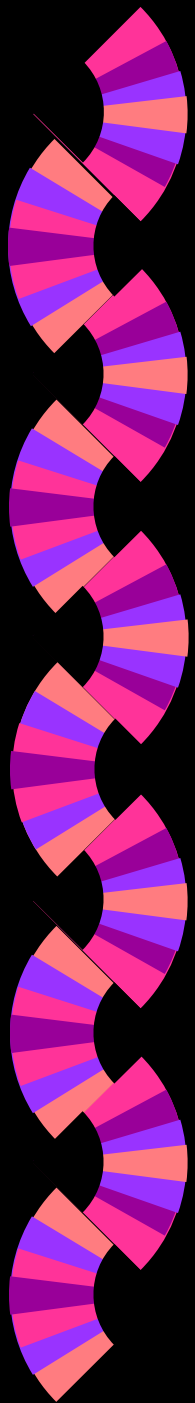


- Adivinar la suma

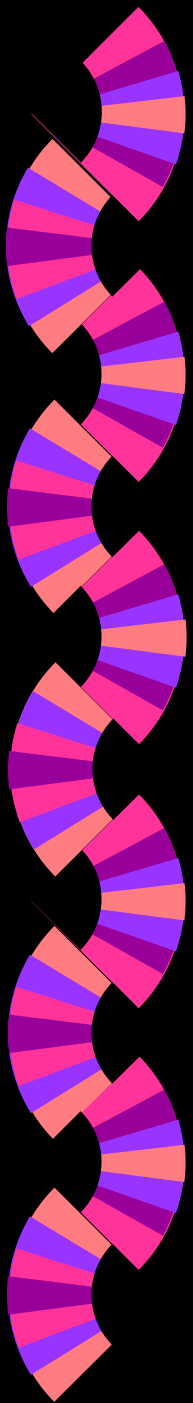


- ¿Qué carta?

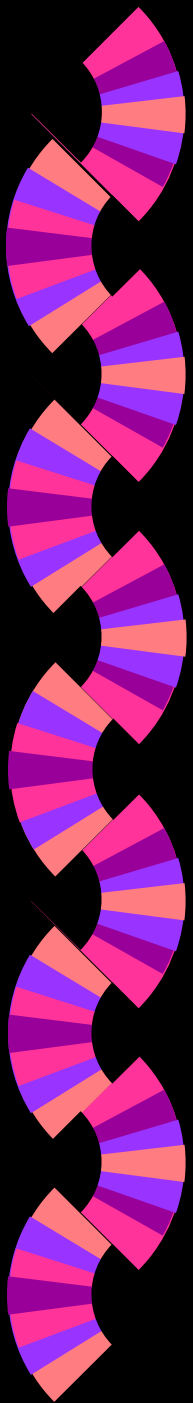




- Número mágico



# Adivinación a distancia



- Calendario