Multiplications

Multiplication Facts

Multiplying by 0 : Any number multiplied by 0 equals 0.

Example: 0 x 0=0 0 x 1=0 0 x 2=0 0 x 3=0 .....

Multiplying by 1 : Any number multiplied by 1 equals that number.

1x1=1	1x2=2	1x3=3	1x4=4	1x5=5	1x6=6	1x7=7	1x8=8	1x9=9

Multiplying by 2 : A number multiplied by 2 produces a result twice as large as the original number.

2x1=2	2x2=4	2x3=6	2x4=8	2x5=10	2x6=12	2x7=14	2x8=16	2x9=18

Multiplication by 5 and 6

FIVE								
5x1=5	5x2=10	5x3=15	5x4=20	5x5=25	5x6=30	5x7=35	5x8=40	5x9=45
SIX								
6x1=6	6x2=12	6x3=18	6x4=24	6x5=30	6x6=36	6x7=42	6x8=48	6x9=54

Multiplication by - All from 0x 0 to 9x 9

ZERO								
0x0=0	0x1=0	0x2=0	0x3=0	0x4=0	0x5=0	0x6=0	0x7=0	0x8=0	0x9=0
ONE								
1x0=0	1x1=1	1x2=2	1x3=3	1x4=4	1x5=5	1x6=6	1x7=7	1x8=8	1x9=9
TWO								
2x0=0	2x1=2	2x2=4	2x3=6	2x4=8	2x5=10	2x6=12	2x7=14	2x8=16	2x9=18
THREE								
3x0=0	3x1=3	3x2=6	3x3=9	3x4=12	3x5=15	3x6=18	3x7=21	3x8=24	3x9=27
FOUR								
4x0=0	4x1=4	4x2=8	4x3=12	4x4=16	4x5=20	4x6=24	4x7=28	4x8=32	4x9=36
FIVE								
5x0=0	5x1=5	5x2=10	5x3=15	5x4=20	5x5=25	5x6=30	5x7=35	5x8=40	5x9=45
SIX								
6x0=0	6x1=6	6x2=12	6x3=18	6x4=24	6x5=30	6x6=36	6x7=42	6x8=48	6x9=54
SEVEN								
7x0=0	7x1=7	7x2=14	7x3=21	7x4=28	7x5=35	7x6=42	7x7=49	7x8=56	7x9=63
EIGHT								

8x0=0	8x1=8	8x2=16	8x3=24	8x4=32	8x5=40	8x6=48	8x7=56	8x8=64	8x9=72
NINE									
9x0=0	9x1=9	9x2=18	9x3=27	9x4=36	9x5=45	9x6=54	9x7=63	9x8=72	9x9=81

Multiplying by Repeated Addition

The result of multiplication is the total number (product) that would be obtained by combining several (multiplier) groups of similar size (multiplicand).

The same result can be obtained by repeated addition.

If we are combining 6 groups with 7 objects in each group, we could arrive at the same answer by addition.

For example, 6+6+6+6+6+6=42 is equivalent to the multiplication equation 6x7=42.

Multiplication Terms

There are two terms which describe the three numbers in a multiplication problem. The factors are the numbers that are being multiplied together. The product is the result or answer of multiplying the multiplicand by the multiplier.

A multiplication problem may be written horizontally such as 6832 x 8 = 54656. In this example 6832 and 8 are the factors and 54656 is the product of the multiplication.

A multiplication problem may be written vertically.

6832

x 8

54656

The factors are 6832 and 8 and the product of the multiplication is 54656.

Multiplying by 10

Steps:

- Move the decimal point one place to the left in the number ending in zero.
- For example: 7 x 40 would become 7x 4
- Do the multiplication (7x 4=28)
- Move the decimal point of the product one place to the right (280)

Multiplying by 100

- How to multiply by hundreds:
- Move the decimal point two places to the left. For example: 6 x 400 would become 6x 4
- Do the multiplication (6x 4=24)
- Move the decimal point of the product two places to the right (=2400)

Multiplication of Two and Three Digit Numbers

529 x 67= ?

Place one number above the other so that the hundreds', tens' and ones' places are lined up. Draw a line under the bottom number.

H T O
5 2 9
6 7

Multiply the two numbers in the ones' places. (9 x 7 = 63). This number is larger than 9 so place a 6 above the tens' place column and place 3 below the line in the ones' place column.

	6
	5 2 9
	6 7
	3

Multiply the digit in the top tens' place column (2) by the digit in the lower ones' place column (7). The answer (2x7=14) is added to the 6 above the top tens' place column to give an answer of 20. The 0 of 20 is placed below the line and the 2 of the 20 is placed above the hundreds' place column.

	2 6
	5 2 9
	6 7
	03

The hundreds' place of the top number (5) is multiplied by the ones' place of the multiplier (5*7=35). The two that was previously carried to the hundreds' place is added and the 37 is placed below the line.

```
  2 6
  5 2 9
    6 7
-------
  37 03
```

After 529 has been multiplied by 7 as shown above, 529 is multiplied by the tens' place of the multiplier which is 6. The number is moved one place to the left because we are multiplying by a tens' place number. The result would be 3174:

```
  1 5
  5 2 9
    6 7
-------
  37 03
 3174
```

A line is drawn under the lower product (3174) and the products are added together to get the final answer of 35443.

```
  5 2 9
    6 7
-------
  37 03
 3174
-------
 35443
```

Multiplication and Division Relationship

There is an inverse relationship between multiplication and division just like there was between addition and subtraction.

The equation 4 x 7 = 28 has the inverse relationships:

28 ÷ 4 = 7