

Section 1 – Inverse operations

Inverse means the opposite operation to reverse the its effect

We use inverse operations to:

- Check answers
- Solve missing number problems

Opposite operations.

Addition

4 + 2 = 6
2 + 4 = 6

← inverse →

Subtraction

6 - 4 = 2
6 - 2 = 4

256
+ 423

679

↔

679
- 423

256

Missing number at the beginning?
Do the inverse and you're winning!

___ - 20 = 30

Missing number in the middle?
Do a subtraction, solve that riddle!

25 + ___ = 35

Missing number at the end?
That's the way I like it, friend!

24 + 36 = ___

Year 5 Knowledge Organiser - Maths Autumn 2

Section 2 – Square and prime numbers

When you multiply a number by itself, the result is a square number. A square number can only end with the digits: 0, 1, 4, 6, 9 or 25.

Square Numbers

When a number has been multiplied by itself, we say that the answer is a square number.

1 x 1 = 1

1

2 x 2 = 4

1	2
3	4

3 x 3 = 9

1	2	3
4	5	6
7	8	9

We can write three squared as 3 x 3 or 3²

1 x 1 = 1
2 x 2 = 4
3 x 3 = 9
4 x 4 = 16
5 x 5 = 25
6 x 6 = 36
7 x 7 = 49
8 x 8 = 64
9 x 9 = 81
10 x 10 = 100
11 x 11 = 121
12 x 12 = 144

Prime Numbers

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

PRIME NUMBERS

So what is a prime number?

Prime numbers are special numbers that can **only** be divided by themselves and 1.

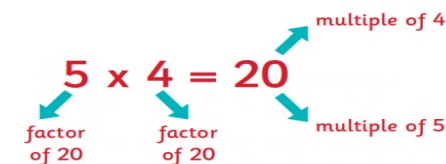
For example 41 is a prime number.
It can only be divided by 1 and 41.

Section 3 – Factors and multiples

Factors - The factors of a number are the numbers that divide into it exactly. Factors are the numbers we multiply to make the product.

Multiples - Multiples are the numbers that we get when we multiply a number by another number.

Examples:



Factors:

1, 2, 3, 6

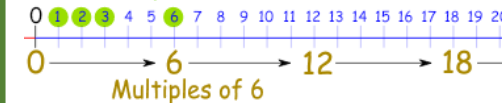
1x6 =

3x2 =

2x3 =

6x1 =

Factors of 6



Multiples:


(think times tables)

6, 12, 18, 24, 30, 36, 42, 48,
54, 60, 66, 72

Section 4 – Multiplication

MULTIPLICATION

multiply groups of
times lots of
product doubled
multiplied by times tables



$$\begin{array}{r} 32 \\ \times 29 \\ \hline 18 \\ 270 \\ 40 \\ + 600 \\ \hline 928 \end{array}$$

(9×2)
(9×30)
(20×2)
(20×30)

The Grid $38 \times 7 = (30 \times 7) + (8 \times 7) = 210 + 56 = 266$

x	7
30	210
8	56
	266

Short Multiplication

x	38	38
x 7		x 7
	266	210
	5	56
		266

3 x 2

Methods for 2-digit by 2-digit products

x	56	
x 27		
	1120	56 x 20
	392	56 x 7
	1512	

x	20	9
200	4000	1800
80	1600	720
6	120	54





Partitioning

$43 \times 6 = (40 + 3) \times 6$
 $= (40 \times 6) + (3 \times 6) = 240 + 18 = 258$



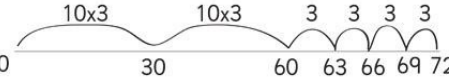
Section 5 – Division

DIVISION

divided by  divisible by
share  group
divide  each
divide into  share equally

Chunking

$72 \div 3$



24 lots of 3

Short Division

$20 + 7$
 $3 \overline{) 60 + 21}$
 $3 \overline{) 8^2 1}$

Long Division

23
 $24 \overline{) 560}$
 $- 480$
 $\hline 80$
 $- 72$
 $\hline 8$

23 R 8

Partitioning

$87 \div 3 = (60 + 27) \div 3$
 $= (60 \div 3) + (27 \div 3)$
 $= 20 + 9 = 29$

