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Knowledge Organiser

Key Vocabulary

Add Total

Make

Plus

Sum

More

Altogether

Difference

Leave

Subtract

Difference between

Less

Minus

Take away

Mentally, Orally

Column Addition

Column Subtraction

Estimate

Inverse operation

Solve problems

Number facts

Place Value

Complex

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Add and Subtract Whole Numbers

Column Method

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
		1	1	1	

Starting with the ones, add each column in turn.
Regroup tens, hundreds, thousands, ten thousands as required.

	3	5	67	¹³ /4	¹ 2 ′
-		3	4	7	6
	3	2	2	6	6

Starting with the ones, subtract each column in turn.
Exchange tens, hundreds, thousands and/or ten thousands as required.

Multiply up to 4-digit by 2-digit

3 2 1 5 4 X 2 9 4 0 0 3 0 0 4 4 1 1

Start with the ones.

$$154 \times 6 = 924$$

$$154 \times 20 = 3080$$

Order of Operations

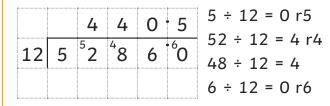
В	Brackets	10 × (4 + 2) = 10 × 6 = 60
0	Order	5 + 2 ² = 5 + 4 = 9
D	Division	10 + 6 ÷ 2 = 10 + 3 = 13
M	Multiplication	10 - 4 × 2 = 10 - 8 = 2
Α	Addition	10 × 4 + 7 = 40 + 7 = 47
S	Subtraction	10 ÷ 2 - 3 = 5 - 3 = 2

Four Operations

Knowledge Organiser

Short Division

Start from the left.



Common Factors

Factors of 48

1	2	3	4	6	8	12	16	24	48
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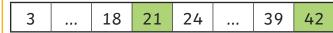
Factors of 30

1 1	2	5	6	10	15	30
+ 4	- -	5	U	10	15	50

Common factors: 1, 2, 3, 6

Common Multiples

Multiples of 3



Multiples of 7

Common multiples: 21, 42...

Long Division

		1	2	0	r	3
14	1	6	8	3		
	1	4	0	0		
		2	8	3		
		2	8	0		
				3		

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 33, 37, 41, 43

A composite number has factors other than 1 and itself.

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. $5 \times 5 = 25$):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice $(2 \times 2 \times 2 = 8)$: 1, 8, 27, 64, 125

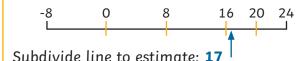
Mental Calculations and Estimation

Order of calculations:

$$50 \times 34 \times 2 = 50 \times 2 \times 34 = 100 \times 34 = 3400$$

Money: £8.99 + £3.49 = £12.48

Use £9 + £3.50 = £12.50 and subtract 2p Estimate on a number line



Reason from Known Facts

$$16 \times 9 = 144$$
 so $1.6 \times 9 = 14.4$

$$4352 \div 17 = 256$$

