Addition, Subtraction, Multiplication and Division

Key Vocabulary

hundred(s)

thousand(s)

ten thousand(s)

hundred thousand(s)

million(s)

ten million(s)

integer

negative number

power of 10

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	$^{6}\not{7}$	$^{13}\not{4}$	$^{1}\not{2}$
-		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

		5	3	8	2	
		×		7	5	
	2	6_1	9_4	1_1	0	(5382 × 5)
3	7_2	6_5	7_1	4	0	(5382 × 70)
4	0	3	6	5	0	
1	1	1				

Order of Operations

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

Common Factors

Factors of 48

1	2	3	4	6	8	12	16	24	48

Factors of 30

1	2	3	5	6	10	15	30

Common factors: 1, 2, 3, 6

Common Multiples

Common Multiples

Multiples of 3

3	...	18	21	24	...	39	42

Multiples of 7

7	14	21	28	35	42

Common multiples: 21, 42...

Known Facts

90 ÷ 10 = 9

90 ÷ 20 = 4.5

90 ÷ 5 = 18

Addition, Subtraction, Multiplication and Division

Divisibility Rules

A number is divisible by:
2 if the ones digit is even
3 if the digit sum is a multiple of 3
4 if the ones digit is even when the number is halved
5 if the ones digit is 0 or 5
6 if it is divisible by both 2 and 3
10 if the ones digit is 0

Division Using Factors

The factor pairs of 15 are 3 and 5.
4680 ÷ 15 = 4680 ÷ 3 ÷ 5
4680 ÷ 3 = 1560
1560 ÷ 5 = 312
So 4680 ÷ 15 = 312

Short Division

Start from the left.

		4	4	0	r6
12	5	$^{5}2$	$^{4}8$	6	

Long Division

		2	5	r12
15	3	8	7	
-	3	0	0	
		8	7	
	-	7	5	
		1	2	

Method 1 - using multiples

(15 × 20)

(15 × 5)

		1	9	1	r7
14	2	6	8	1	
-	1	4	↓	↓	
	1	2	8		
-	1	2	6	↓	
			2	1	
		-	1	4	
				7	

Method 2

2681 ÷ 14 =

191 r7

or

$191\frac{7}{14} = 191\frac{1}{2}$

Prime Numbers

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47

A composite number has factors other than 1 and itself.

Square Numbers

Square numbers result from a number being multiplied by itself (e.g. 5 × 5 = 25):
1, 4, 9, 16, 25, 36, 49, 64, 81, 100

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

What careers might this help with?

Accountant

An accountant helps a company or organisation manage and understand its money. They keep accurate financial records, check income and spending and make sure bills and taxes are paid correctly. They may prepare budgets, create financial reports and check that money is being used carefully. Accountants also help businesses understand their finances so they can plan ahead and make good decisions about spending and saving.

Data Analyst

A data analyst helps a company or organisation understand information by collecting, organising and studying data. They look for patterns, trends and useful facts that can help answer questions or solve problems. They may use spreadsheets, charts and computer programs to present information clearly. Data analysts also create reports and share their findings to help businesses make informed decisions and plan for the future.

Economist

An economist studies how money, businesses and people make choices about using resources. They collect and analyse information about things such as prices, jobs, wages and spending to understand how the economy is changing. They may create graphs, reports and forecasts to explain trends and predict what might happen in the future. Economists use their findings to help businesses, organisations and governments make informed decisions.