Mathematical Knowledge for the curriculum in Year 4

Dear parents,

The following are the mathematical facts your child will need to complete the year 4 curriculum. In order that they can learn how to use numbers, geometry and statistics they will need to have a basic recall of facts that can then be applied. The UK curriculum in mathematics is now focussed on Mastery approaches to ensure that the best students genuinely are so, and that more students get the best grades. With this in mind the first step to mastery comes from knowing the basic facts so that in school they can apply these facts.

The decimal number system

Thousands	Ones			Fractions	
Thousands	Hundreds	Tens	Ones	Tenths	Hundredths

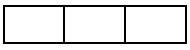
5 769 is five thousand, seven hundred and sixty nine.
In the number 5 769 the 5 stands for five thousand and the 6 stands for sixty.
27.39 is twenty seven point three nine; you will note that fractions are read as single numbers.
In the number 27.39 the 3 stands for three tenths and the 9 stands for nine hundredths.

Fractions

Fractions are numbers that include part of a whole number, they are written as $\frac{numerator}{denominator}$

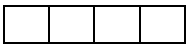
The denominator tells you how many divisions make a whole number

Whole = 1



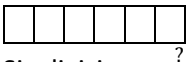
Three divisions = $\frac{?}{3}$

Whole = 1



Four divisions = $\frac{?}{4}$

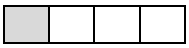
Whole = 1



Six divisions = $\frac{?}{6}$

The numerator tells you how many divisions are selected

Three divisions, two selected = $\frac{2}{3}$



Four divisions, one selected = $\frac{1}{4}$

Six divisions, five selected = $\frac{5}{6}$

Know 10th and 100th and decimal equivalent

We can write 10th as a fraction $\frac{3}{10}$ and as a decimal 0.3, another example could be $\frac{7}{10}$ and 0.7

We can write 100th as a fraction $\frac{3}{100}$ and as a decimal 0.03, another example could be $\frac{9}{100}$ and 0.09, we could also write $\frac{27}{100}$ and 0.27

Equivalent fractions and decimals

$\frac{1}{2}$ = 0.5

$\frac{1}{4}$ = 0.25

$\frac{2}{4} = \frac{1}{2}$ = 0.5

$\frac{3}{4}$ = 0.75

Y4 Mathematical facts

Counting in multiples of 6, 7, 9, 25 and 1000

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

7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, …

9, 18, 27, 36, 45, 54, 63, 72, 81, 90, 99, 108, …

25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, …

1 000, 2 000, 3 000, 4 000, 5 000, 6 000, 7 000, 8 000, 9 000, 10 000, 11 000, 12 000, …

Finding 1000 more or less than a given number

e.g. 2 847 plus 1 000 is 3 847 e.g. 7 643 less 1 000 is 6 643

Counting in multiples of 10 for any given number up to 1 000 000

count forward or backwards in 10's

e.g. 2 347, 2 357, 2 367, e.g. 98 346, 98 336, 98 326

count forward or backwards in 100's

e.g. 52 397, 52 497, 52 597, e.g. 7 926, 7 826, 7 726

Count forwards or backwards in 1 000's

e.g. 6 139, 7 139, 8 139 e.g. 375 228, 374 228, 373 228

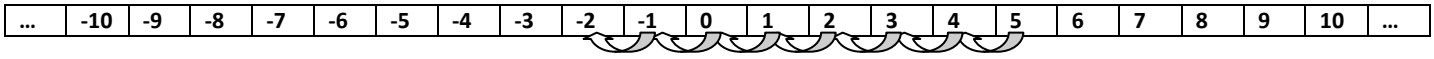
Counting up and down in hundredths

Digits	Words
7.31, 7.32, 7.33, 7.34, 7.35, 7.36, …	Seven point three one, seven point three two, seven point three three, seven point three four, seven point three five, seven point three six, …
5.68, 5.67, 5.66, 5.65, 5.64, 5.63, ...	Five point six eight, five point six seven, five point six six, five point six five, five point six four, five point six three, ….

Counting backwards through zero to include negative numbers

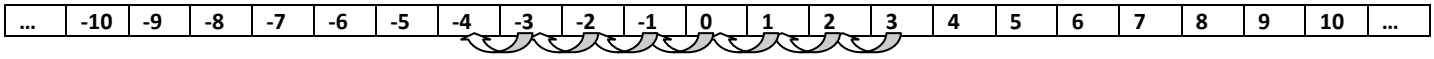
Counting down in 1's from 5

5, 4, 3, 2, 1, 0, -1, -2, …



Counting down in 1's from 3

3, 2, 1, 0, -1, -2, -3, -4, …



Know roman numerals

Number	1	2	3	4	5	6	7	8	9	10
Roman numeral	I	II	III	IV	V	VI	VII	VIII	IX	X

Number	11	12	13	14	15	16	17	18	19	20
Roman numeral	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX

Number	50	100
Roman numeral	L	C

59	82	123	230
LIX	LXXXII	CXXIII	CCXXX

Y4 Mathematical facts

Recall groups of number facts

3 x 4 = 12	4 x 3 = 12	12 ÷ 3 = 4	12 ÷ 4 = 3

7 x 8 = 56	8 x 7 = 56	56 ÷ 7 = 8	56 ÷ 8 = 7

Recall multiplication and division facts for multiplication tables up to 12 × 12

1x1 = 1	2x1 = 2	3x1 = 3	4x1 = 4	5x1 = 5	6x1 = 6
1x2 = 2	2x2 = 4	3x2 = 6	4x2 = 8	5x2 = 10	6x2 = 12
1x3 = 3	2x3 = 6	3x3 = 9	4x3 = 12	5x3 = 15	6x3 = 18
1x4 = 4	2x4 = 8	3x4 = 12	4x4 = 16	5x4 = 20	6x4 = 24
1x5 = 5	2x5 = 10	3x5 = 15	4x5 = 20	5x5 = 25	6x5 = 30
1x6 = 6	2x6 = 12	3x6 = 18	4x6 = 24	5x6 = 30	6x6 = 36
1x7 = 7	2x7 = 14	3x7 = 21	4x7 = 28	5x7 = 35	6x7 = 42
1x8 = 8	2x8 = 16	3x8 = 24	4x8 = 32	5x8 = 40	6x8 = 48
1x9 = 9	2x9 = 18	3x9 = 27	4x9 = 36	5x9 = 45	6x9 = 54
1x10 = 10	2x10 = 20	3x10 = 30	4x10 = 40	5x10 = 50	6x10 = 60
1x11 = 11	2x11 = 22	3x11 = 33	4x11 = 44	5x11 = 55	6x11 = 66
1x12 = 12	2x12 = 24	3x12 = 36	4x12 = 48	5x12 = 60	6x12 = 72

1÷1 = 1	2÷2 = 1	3÷3 = 1	4÷4 = 1	5÷5 = 1	6÷6 = 1
2÷1 = 2	4÷2 = 2	6÷3 = 2	8÷4 = 2	10÷5 = 2	12÷6 = 2
3÷1 = 3	6÷2 = 3	9÷3 = 3	12÷4 = 3	15÷5 = 3	18÷6 = 3
4÷1 = 4	8÷2 = 4	12÷3 = 4	16÷4 = 4	20÷5 = 4	24÷6 = 4
5÷1 = 5	10÷2 = 5	15÷3 = 5	20÷4 = 5	25÷5 = 5	30÷6 = 5
6÷1 = 6	12÷2 = 6	18÷3 = 6	24÷4 = 6	30÷5 = 6	36÷6 = 6
7÷1 = 7	14÷2 = 7	21÷3 = 7	28÷4 = 7	35÷5 = 7	42÷6 = 7
8÷1 = 8	16÷2 = 8	24÷3 = 8	32÷4 = 8	40÷5 = 8	48÷6 = 8
9÷1 = 9	18÷2 = 9	27÷3 = 9	36÷4 = 9	45÷5 = 9	54÷6 = 9
10÷1 = 10	20÷2 = 10	30÷3 = 10	40÷4 = 10	50÷5 = 10	60÷6 = 10
11÷1 = 11	22÷2 = 11	33÷3 = 11	44÷4 = 11	55÷5 = 11	66÷6 = 11
12÷1 = 12	24÷2 = 12	36÷3 = 12	48÷4 = 12	60÷5 = 12	72÷6 = 12

1÷1 = 1	2÷1 = 2	3÷1 = 3	4÷1 = 4	5÷1 = 5	6÷1 = 6
2÷2 = 1	4÷2 = 2	6÷2 = 3	8÷2 = 4	10÷2 = 5	12÷2 = 6
3÷3 = 1	6÷3 = 2	9÷3 = 3	12÷3 = 4	15÷3 = 5	18÷3 = 6
4÷4 = 1	8÷4 = 2	12÷4 = 3	16÷4 = 4	20÷4 = 5	24÷4 = 6
5÷5 = 1	10÷5 = 2	15÷5 = 3	20÷5 = 4	25÷5 = 5	30÷5 = 6
6÷6 = 1	12÷6 = 2	18÷6 = 3	24÷6 = 4	30÷6 = 5	36÷6 = 6
7÷7 = 1	14÷7 = 2	21÷7 = 3	28÷7 = 4	35÷7 = 5	42÷7 = 6
8÷8 = 1	16÷8 = 2	24÷8 = 3	32÷8 = 4	40÷8 = 5	48÷8 = 6
9÷9 = 1	18÷9 = 2	27÷9 = 3	36÷9 = 4	45÷9 = 5	54÷9 = 6
10÷10 = 1	20÷10 = 2	30÷10 = 3	40÷10 = 4	50÷10 = 5	60÷10 = 6
11÷11 = 1	22÷11 = 2	33÷11 = 3	44÷11 = 4	55÷11 = 5	66÷11 = 6
12÷12 = 1	24÷12 = 2	36÷12 = 3	48÷12 = 4	60÷12 = 5	72÷12 = 6

Y4 Mathematical facts

Recall multiplication and division facts for multiplication tables up to 12 × 12 (continued)

7x1 = 7	8x1 = 8	9x1 = 9	10x1 = 10	11x1 = 11	12x1 = 12
7x2 = 14	8x2 = 16	9x2 = 18	10x2 = 20	11x2 = 22	12x2 = 24
7x3 = 21	8x3 = 24	9x3 = 27	10x3 = 30	11x3 = 33	12x3 = 36
7x4 = 28	8x4 = 32	9x4 = 36	10x4 = 40	11x4 = 44	12x4 = 48
7x5 = 35	8x5 = 40	9x5 = 45	10x5 = 50	11x5 = 55	12x5 = 60
7x6 = 42	8x6 = 48	9x6 = 54	10x6 = 60	11x6 = 66	12x6 = 72
7x7 = 49	8x7 = 56	9x7 = 63	10x7 = 70	11x7 = 77	12x7 = 84
7x8 = 56	8x8 = 64	9x8 = 72	10x8 = 80	11x8 = 88	12x8 = 96
7x9 = 63	8x9 = 72	9x9 = 81	10x9 = 90	11x9 = 99	12x9 = 108
7x10 = 70	8x10 = 80	9x10 = 90	10x10 = 100	11x10 = 110	12x10 = 120
7x11 = 77	8x11 = 88	9x11 = 99	10x11 = 110	11x11 = 121	12x11 = 132
7x12 = 84	8x12 = 96	9x12 = 108	10x12 = 120	11x12 = 132	12x12 = 144

7÷7 = 1	8÷8 = 1	9÷9 = 1	10÷10 = 1	11÷11 = 1	12÷12 = 1
14÷7 = 2	16÷8 = 2	18÷9 = 2	20÷10 = 2	22÷11 = 2	24÷12 = 2
21÷7 = 3	24÷8 = 3	27÷9 = 3	30÷10 = 3	33÷11 = 3	36÷12 = 3
28÷7 = 4	32÷8 = 4	36÷9 = 4	40÷10 = 4	44÷11 = 4	48÷12 = 4
35÷7 = 5	40÷8 = 5	45÷9 = 5	50÷10 = 5	55÷11 = 5	60÷12 = 5
42÷7 = 6	48÷8 = 6	54÷9 = 6	60÷10 = 6	66÷11 = 6	72÷12 = 6
49÷7 = 7	56÷8 = 7	63÷9 = 7	70÷10 = 7	77÷11 = 7	84÷12 = 7
56÷7 = 8	64÷8 = 8	72÷9 = 8	80÷10 = 8	88÷11 = 8	96÷12 = 8
63÷7 = 9	72÷8 = 9	81÷9 = 9	90÷10 = 9	99÷11 = 9	108÷12 = 9
70÷7 = 10	80÷8 = 10	90÷9 = 10	100÷10 = 10	110÷11 = 10	120÷12 = 10
77÷7 = 11	88÷8 = 11	99÷9 = 11	110÷10 = 11	121÷11 = 11	132÷12 = 11
84÷7 = 12	96÷8 = 12	108÷9 = 12	120÷10 = 12	132÷11 = 12	144÷12 = 12

7÷1 = 7	8÷1 = 8	9÷1 = 9	10÷1 = 10	11÷1 = 11	12÷1 = 12
14÷2 = 7	16÷2 = 8	18÷2 = 9	20÷2 = 10	22÷2 = 11	24÷2 = 12
21÷3 = 7	24÷3 = 8	27÷3 = 9	30÷3 = 10	33÷3 = 11	36÷3 = 12
28÷4 = 7	32÷4 = 8	36÷4 = 9	40÷4 = 10	44÷4 = 11	48÷4 = 12
35÷5 = 7	40÷5 = 8	45÷5 = 9	50÷5 = 10	55÷5 = 11	60÷5 = 12
42÷6 = 7	48÷6 = 8	54÷6 = 9	60÷6 = 10	66÷6 = 11	72÷6 = 12
49÷7 = 7	56÷7 = 8	63÷7 = 9	70÷7 = 10	77÷7 = 11	84÷7 = 12
56÷8 = 7	64÷8 = 8	72÷8 = 9	80÷8 = 10	88÷8 = 11	96÷8 = 12
63÷9 = 7	72÷9 = 8	81÷9 = 9	90÷9 = 10	99÷9 = 11	108÷9 = 12
70÷10 = 7	80÷10 = 8	90÷10 = 9	100÷10 = 10	110÷10 = 11	120÷10 = 12
77÷11 = 7	88÷11 = 8	99÷11 = 9	110÷11 = 10	121÷11 = 11	132÷11 = 12
84÷12 = 7	96÷12 = 8	108÷12 = 9	120÷12 = 10	132÷12 = 11	144÷12 = 12

Standard units of length, mass, volume and time

	Length		Volume	Mass
Standard units	kilometre = km metre = m centimetre = cm millimetre = mm		litre = l millilitre = ml	Kilogram = kg gram = g
Equivalencies	1km = 1000m, 1m = 100cm = 1000mm, 1cm = 10mm,		1 l = 1000ml 1 ml = 1 cm^3	1t = 1000kg, 1kg = 1000g, 1g = 1000mg

Y4 Mathematical facts

Time

1 hour = 60 minutes
1 minute = 60 seconds

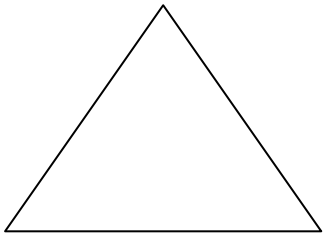
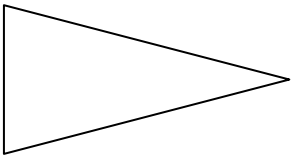
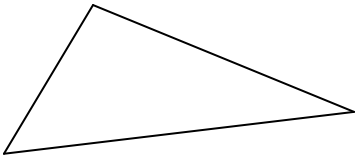
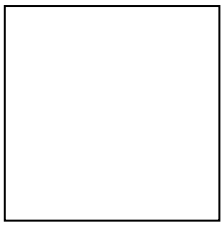
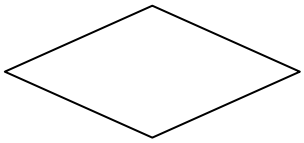
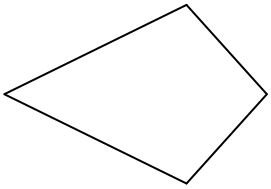
1 week = 7 days

1 year = 12 months

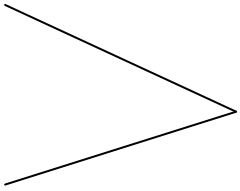
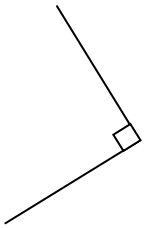
Days: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday.

Months: January, February, March, April, May, June, July, August, September, October, November, December.

Quadrilaterals and triangles

Equilateral Triangle  All sides are equal in length	Isosceles triangle  Two sides are equal in length	Scalene triangle  No sides are the same length
Square  All sides are equal	Rectangle  Opposite sides are equal	Rhombus  All sides are equal
Parallelogram  Opposite sides are equal	Kite 	Trapezium  One pair of sides is parallel

Know acute and obtuse angles

Acute angle (less than 90°) 	Right angle (90°) 	Obtuse angle (over 90° less than 180°)