



Year 5 Maths Knowledge Organiser

Place Value

Millions	Thousands	Units
1	4 6 2	7 9 5
millions	hundred thousands thousands ten thousands	hundreds tens ones

Expanded Form:

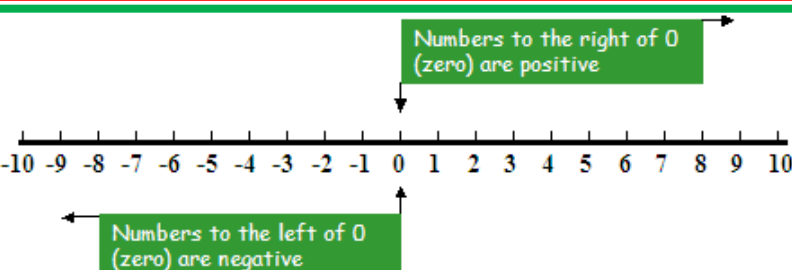
1,000,000 + 400,000 + 60,000 + 2,000 + 700 + 90 + 5

Word Form: one million, four hundred sixty-two thousand, seven hundred ninety-five

Standard Form: 1,462,795

Roman Numerals

I	1	XXI	21	XXI	41	LXI	61	LXXXI	81
II	2	XXII	22	XLII	42	LXII	62	LXXXII	82
III	3	XXIII	23	XLIII	43	LXIII	63	LXXXIII	83
IV	4	XXIV	24	XLIV	44	LXIV	64	LXXXIV	84
V	5	XXV	25	XLV	45	LXV	65	LXXXV	85
VI	6	XXVI	26	XLVI	46	LXVI	66	LXXXVI	86
VII	7	XXVII	27	XLVII	47	LXVII	67	LXXXVII	87
VIII	8	XXVIII	28	XLVIII	48	LXVIII	68	LXXXVIII	88
IX	9	XXIX	29	XLIX	49	LXIX	69	LXXXIX	89
X	10	XXX	30	L	50	LXX	70	XC	90
XI	11	XXXI	31	LI	51	LXXI	71	XCI	91
XII	12	XXXII	32	LII	52	LXXII	72	XCV	92
XIII	13	XXXIII	33	LIII	53	LXXIII	73	XCVI	93
XIV	14	XXXIV	34	LIV	54	LXXIV	74	XCVII	94
XV	15	XXXV	35	LV	55	LXXV	75	XCVIII	95
XVI	16	XXXVI	36	LVI	56	LXXVI	76	XCIX	96
XVII	17	XXXVII	37	LVII	57	LXXVII	77	C	100
XVIII	18	XXXVIII	38	LVIII	58	LXXVIII	78	D	500
XIX	19	XXXIX	39	LIX	59	LXXIX	79	M	1000
XX	20	XL	40	LX	60	LXXX	80		



Powers of 10

Power	Expression	Standard Form
10^1	10	10
10^2	10×10	100
10^3	$10 \times 10 \times 10$	1000
10^4	$10 \times 10 \times 10 \times 10$	10000
10^5	$10 \times 10 \times 10 \times 10 \times 10$	100000
10^6	$10 \times 10 \times 10 \times 10 \times 10 \times 10$	1000000

Round these numbers to the nearest...

...10

48 → 50

87 → 90

184 → 180

145 → 150

...100

209 → 200

2867 → 2900

3467 → 3500

1095 → 1100

...1000

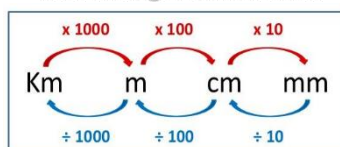
3456 → 3000

5349 → 5000

89231 → 89000

37849 → 38000

Converting LENGTH Units



	Fraction	Decimal	Percentages
	$\frac{1}{1}$	1.0	100%
	$\frac{3}{4}$	0.75	75%
	$\frac{2}{3}$	0.66	66.6%
	$\frac{1}{2}$	0.5	50%
	$\frac{3}{8}$	0.375	37.5%
	$\frac{1}{3}$	0.33	33.3%
	$\frac{1}{4}$	0.25	25%
	$\frac{1}{5}$	0.2	20%
	$\frac{1}{8}$	0.125	12.5%
	$\frac{1}{10}$	0.1	10%

Vocabulary- Number

Prime numbers	A number that is divisible only by itself and 1 (e.g. 2, 3, 5, 7, 11).
Composite (non-prime) numbers	A composite number has more than two factors.

Long Multiplication

Multiplying by a Two-Digit Number

$$154 \times 26$$

1 Write the numbers above each other in the correct columns.

$$\begin{array}{r} 154 \\ \times 26 \\ \hline \end{array}$$

3 Next, multiply the tens in the three-digit number by the ones digit in the two-digit number and add any regrouped tens.

$$5 \text{ tens} \times 6 = 30 \text{ tens} = 3 \text{ tens} = 3 \text{ hundreds and } 2 \text{ tens}$$

Write 2 in the answer section and regroup the 3 hundreds by writing 3 above the hundreds column.

$$\begin{array}{r} 32 \\ 154 \\ \times 26 \\ \hline 24 \end{array}$$

2 First, multiply the ones in the three-digit number by the ones in the two-digit number.

$$\begin{array}{r} 2 \\ 154 \\ \times 26 \\ \hline 4 \end{array}$$

$$4 \text{ ones} \times 6 \text{ ones} = 24 \text{ ones} = 2 \text{ tens and } 4 \text{ ones}$$

Write 4 in the answer section and regroup the 2 tens by writing 2 above the tens column.

4 Finally, multiply the hundreds in the three-digit number by the ones digit in the two-digit number and add any regrouped hundreds.

$$1 \text{ hundred} \times 6 = 6 \text{ hundreds} + 3 \text{ hundreds} = 9 \text{ hundreds}$$

Write 9 in the answer section.

$$\begin{array}{r} 32 \\ 154 \\ \times 26 \\ \hline 924 \end{array}$$

Square Numbers

The product of a number multiplied by itself.

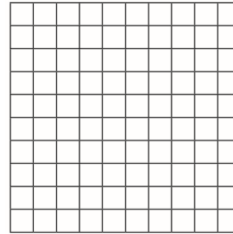
$$\text{e.g. } 10 \times 10 = 100$$

which can be shown as:

$$10^2 = 100$$

$$10 \text{ squared} = 100$$

$$10 \times 10 = 100$$



$$1^2 \quad 1 \times 1 = 1$$

$$2^2 \quad 2 \times 2 = 4$$

$$3^2 \quad 3 \times 3 = 9$$

$$4^2 \quad 4 \times 4 = 16$$

$$5^2 \quad 5 \times 5 = 25$$

$$6^2 \quad 6 \times 6 = 36$$

$$7^2 \quad 7 \times 7 = 49$$

$$8^2 \quad 8 \times 8 = 64$$

$$9^2 \quad 9 \times 9 = 81$$

$$10^2 \quad 10 \times 10 = 100$$

Prime Numbers

A natural number greater than 1 with no divisors other than 1 and itself.

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

Short Division

Dividing by a One-Digit Number

$$84 \div 6$$

1 Partition 84 into tens and ones.

Work out how many 6s divide into 80 so that the answer is a multiple of 10.

In this case, the highest multiple of 10 divisible by 6 is 80.

Partition 84 into 60 and 24 then divide each number by 6.

Combine the totals.

2 Combine the totals.

$$\begin{array}{r} 10 + 4 \\ 6 \overline{) 60 + 24} \end{array}$$

3 This can be shortened to:

$$\begin{array}{r} 14 \\ 6 \overline{) 84} \end{array}$$

Addition with 5-Digit Numbers: Column Method

1

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline \end{array}$$

Place the numbers one on top of the other, lining up the digits correctly.

2

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 9 \end{array}$$

Add the ones and write the answer under the ones.

3

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 09 \end{array}$$

Add the tens and write the answer under the tens, regrouping any hundreds that go into the hundreds column.

4

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 809 \end{array}$$

Add the hundreds, including any hundreds that go into the thousands column.

5

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 6809 \end{array}$$

Add the thousands and write the answer under the thousands.

6

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 66809 \end{array}$$

Add the ten thousands.

7

$$\begin{array}{r} 32294 \\ + 34515 \\ \hline 66809 \end{array}$$

Check your answer.

Rounding to decimal places

Rounding to decimal places is exactly like rounding whole numbers - you just have more numbers (and therefore greater accuracy).

3.248

3 is the units digit.

2 is worth 2 tenths, and is the first decimal place.

4 is worth 4 hundredths, and is the second decimal place.

8 is worth 8 thousandths, and is the third decimal place.

You will sometimes see "decimal place" shortened to "d.p."

3.248 rounded to 1 d.p.

3.248 → 3.2

1st dp

Look at the next digit. 4 stays down - stay at 3.2.

3.248 rounded to 2 d.p.

3.248 → 3.25

2nd dp

Look at the next digit. 8 rounds up - go to 3.25.

Subtraction: 5-Digit Column Method

1

$$\begin{array}{r} 38291 \\ -18636 \\ \hline \end{array}$$

Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones. Subtract the ones (the answer is 5).

2

$$\begin{array}{r} 38291 \\ -18636 \\ \hline 55 \end{array}$$

Subtract the tens (the answer is 55).

3

$$\begin{array}{r} 38291 \\ -18636 \\ \hline 655 \end{array}$$

Subtract the hundreds (the answer is 655).

4

$$\begin{array}{r} 38291 \\ -18636 \\ \hline 9655 \end{array}$$

Subtract the thousands (the answer is 9655).

5

$$\begin{array}{r} 38291 \\ -18636 \\ \hline 19655 \end{array}$$

Subtract the ten thousands (the answer is 19655).

6

$$\begin{array}{r} 38291 \\ -18636 \\ \hline 19655 \end{array}$$

Check your answer.

Cube Numbers

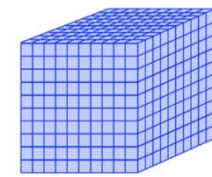
Formed by multiplying a digit by itself 3 times.

$$\text{e.g. } 10 \times 10 \times 10 = 1000$$

$$10^3 = 1000$$

$$10 \text{ cubed} = 1000$$

$$10 \times 10 \times 10 \text{ cube}$$



1 ³	1 x 1 x 1 =	1
2 ³	2 x 2 x 2 =	8
3 ³	3 x 3 x 3 =	27
4 ³	4 x 4 x 4 =	64
5 ³	5 x 5 x 5 =	125
6 ³	6 x 6 x 6 =	216
7 ³	7 x 7 x 7 =	343
8 ³	8 x 8 x 8 =	512
9 ³	9 x 9 x 9 =	729
10 ³	10 x 10 x 10 =	1000

Vocabulary- Measurement

Perimeter	The continuous line forming the boundary of a closed geometrical figure.
Area	The extent or measurement of a surface or piece of land.
Volume	The amount of space that a substance or object occupies, or that is enclosed within a container.

Vocabulary- Angles

Degrees	a unit of measurement of angles
Obtuse angle	An angle whose measure is greater than 90° and less than 180°
Reflex angle	Reflex angles are angles measuring greater than 180° and less than 360°
Acute angle	An acute angle ("acute" meaning "small") is an angle smaller than a right angle. The range of an acute angle is between 0 and 90°

Vocabulary- Fractions

Equivalent fractions	Equivalent fractions can be defined as fractions with different numerators and denominators that represent the same value or proportion of the whole.
Improper fractions	A fraction in which the numerator is greater than the denominator, such as 5/4.
Mixed fractions	A whole number and a fraction combined into one "mixed" number/mixed fractions. Example: 1½ (one and a half) is a mixed fraction.

