

Year 5 Maths  
Knowledge Organiser

# Place Value

Millions		Thousands			Units			
	1	4	6	2	7	9	5	
hundred millions	ten millions	millions	hundred thousands	ten thousands	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	XLI	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	XCII	92
XIII	13	XXXIII	33	LIII	53	LXXIII	73	XCIII	93
XIV	14	XXXIV	34	LIV	54	LXXIV	74	XCIV	94
XV	15	XXXV	35	LV	55	LXXV	75	XCV	95
XVI	16	XXXVI	36	LVI	56	LXXVI	76	XCVI	96
XVII	17	XXXVII	37	LVII	57	LXXVII	77	XCVII	97
XVIII	18	XXXVIII	38	LVIII	58	LXXVIII	78	XCVIII	98
XIX	19	XXXIX	39	LIX	59	LXXIX	79	XCIX	99
XX	20	XL	40	LX	60	LXXX	80	C	100
								D	500
								M	1000

## Powers of 10

Power	Expression	Standard Form
10 <sup>1</sup>	10	10
10 <sup>2</sup>	10x10	100
10 <sup>3</sup>	10x10x10	1000
10 <sup>4</sup>	10x10x10x10	10000
10 <sup>5</sup>	10x10x10x10x10	100000
10 <sup>6</sup>	10x10x10x10x10x10	1000000

### Round these numbers to the nearest...

**...10**

48 → 50  
87 → 90  
184 → 180  
145 → 150

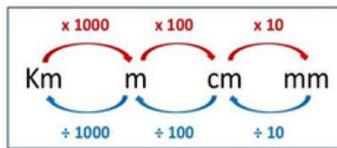
**...100**

209 → 200  
2867 → 2900  
3467 → 3500  
1095 → 1100

**...1000**

3456 → 3000  
5349 → 5000  
89231 → 89000  
37849 → 38000

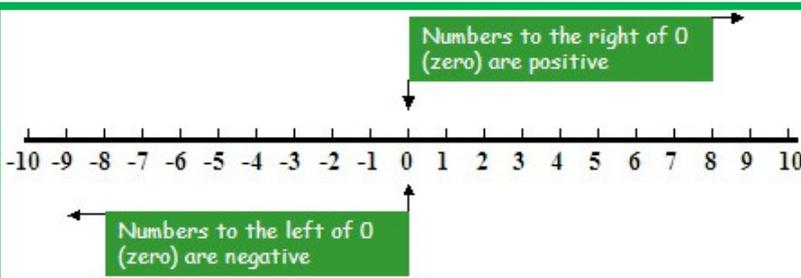
### Converting LENGTH Units



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

### Vocabulary- Number

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



### Long Multiplication

Multiplying by a Two-Digit Number

$154 \times 26$

- Write the numbers above each other in the correct columns.
- First, multiply the ones in the three-digit number by the ones in the two-digit number.
- Next, multiply the tens in the three-digit number by the ones digit in the two-digit number and add any regrouped tens.
- Finally, multiply the hundreds in the three-digit number by the ones digit in the two-digit number and add any regrouped hundreds.

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

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

Write 9 in the answer section.

### Short Division

Dividing by a One-Digit Number

$84 \div 6$

- Partition 84 into tens and ones.
- Combine the totals.
- This can be shortened to:

In this case, the highest multiple of 10 divisible by 6 is 60.

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

Combine the totals.

### Addition with 5-Digit Numbers: Column Method

- Place the numbers one on top of the other. Bring all the digits together.
- Add the ones first in the ones column.
- Add the tens next in the tens column.
- Add the hundreds, including any tens that are being regrouped.
- Add the thousands and carry over any hundreds.
- Add the ten thousands and carry over any thousands.
- Check your answer.

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

Vocabulary- Angles	
<b>Degrees</b>	a unit of measurement of angles
<b>Obtuse angle</b>	An angle whose measure is greater than 90° and less than 180°
<b>Reflex angle</b>	Reflex angles are angles measuring greater than 180° and less than 360°
<b>Acute angle</b>	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°

### Square Numbers

The product of a number multiplied by itself.

e.g.  $10 \times 10 = 100$

which can be shown as:

$10^2 = 100$

10 squared = 100

$10 \times 10 = 100$

- $1^2 = 1 \times 1 = 1$
- $2^2 = 2 \times 2 = 4$
- $3^2 = 3 \times 3 = 9$
- $4^2 = 4 \times 4 = 16$
- $5^2 = 5 \times 5 = 25$
- $6^2 = 6 \times 6 = 36$
- $7^2 = 7 \times 7 = 49$
- $8^2 = 8 \times 8 = 64$
- $9^2 = 9 \times 9 = 81$
- $10^2 = 10 \times 10 = 100$

### 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

### Cube Numbers

Formed by multiplying a digit by itself 3 times.

e.g.  $10 \times 10 \times 10 = 1000$

which can be shown as:

$10^3 = 1000$

10 cubed = 1000

$10 \times 10 \times 10$  cube

- $1^3 = 1 \times 1 \times 1 = 1$
- $2^3 = 2 \times 2 \times 2 = 8$
- $3^3 = 3 \times 3 \times 3 = 27$
- $4^3 = 4 \times 4 \times 4 = 64$
- $5^3 = 5 \times 5 \times 5 = 125$
- $6^3 = 6 \times 6 \times 6 = 216$
- $7^3 = 7 \times 7 \times 7 = 343$
- $8^3 = 8 \times 8 \times 8 = 512$
- $9^3 = 9 \times 9 \times 9 = 729$
- $10^3 = 10 \times 10 \times 10 = 1000$

### 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 rounded to 1 d.p.**

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. → 3.2

1<sup>st</sup> dp: 3.2. Look at the next digit, 4 stays down - stay at 3.2.

**3.248 rounded to 2 d.p.**

3.248 rounded to 2 d.p. → 3.25

2<sup>nd</sup> dp: 3.24. Look at the next digit, 8 rounds up - go to 3.25.

### Subtraction: 5-Digit Column Method

- 38291 - 18636 = 19655
- 38291 - 18636 = 19655
- 38291 - 18636 = 19655
- 38291 - 18636 = 19655
- 38291 - 18636 = 19655
- 38291 - 18636 = 19655

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

