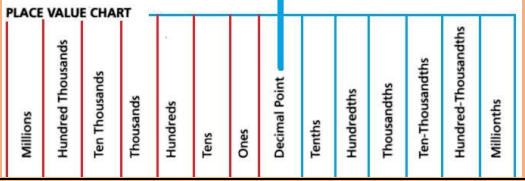


Maths - Topic: Number 1

Topic/Skill	Definition/Tips	Example
Integer	A whole number that can be positive, negative or zero.	$-3, 0, 92$
Place Value	The value of where a digit is within a number.	In 726, the value of the 2 is 20, as it is in the 'tens' column.
Place Value Columns	The names of the columns that determine the value of each digit. The 'ones' column is also known as the 'units' column.	 PLACE VALUE CHART Columns: Millions, Hundred Thousands, Ten Thousands, Thousands, Hundreds, Tens, Ones, Decimal Point, Tenths, Hundredths, Thousandths, Ten-Thousandths, Hundred-Thousandths, Millionths.
Addition	To find the total, or sum, of two or more numbers. 'add', 'plus', 'sum'	$3 + 2 + 7 = 12$
Subtraction	To find the difference between two numbers. To find out how many are left when some are taken away. 'minus', 'take away', 'subtract'	$10 - 3 = 7$
Multiplication	Can be thought of as repeated addition. 'multiply', 'times', 'product'	$3 \times 6 = 6 + 6 + 6 = 18$
Division	Splitting into equal parts or groups. The process of calculating the number of times one number is contained within another one. 'divide', 'share'	$20 \div 4 = 5$ $\frac{20}{4} = 5$
Remainder	The amount ' left over ' after dividing one integer by another.	The remainder of $20 \div 6$ is 2, because 6 divides into 20 exactly 3 times, with 2 left over.
BIDMAS	An acronym for the order you should do calculations in. BIDMAS stands for 'Brackets, Indices, Division, Multiplication, Addition and Subtraction'. Indices are also known as 'powers' or 'orders'. With strings of division and multiplication, or strings of addition and subtraction, and no brackets, work from left to right.	$6 + 3 \times 5 = 21, \text{not } 45$ $5^2 = 25$, where the 2 is the index/power. $12 \div 4 \div 2 = 1.5, \text{not } 6$
Square Number	The number you get when you multiply a number by itself .	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225... $9^2 = 9 \times 9 = 81$
Square Root	The number you multiply by itself to get another number. The reverse process of squaring a number.	$\sqrt{36} = 6$ because $6 \times 6 = 36$
Cube Number	The number you get when you multiply a number by itself and itself again .	1, 8, 27, 64, 125... $2^3 = 2 \times 2 \times 2 = 8$

Cube Root	The number you multiply by itself and itself again to get another number. The reverse process of cubing a number.	$\sqrt[3]{125} = 5$ because $5 \times 5 \times 5 = 125$
Powers of...	The powers of a number are that number raised to various powers .	The powers of 3 are: $3^1 = 3$ $3^2 = 9$ $3^3 = 27$ $3^4 = 81$ etc.
Multiplication Index Law	When multiplying with the same base (number or letter), add the powers . $a^m \times a^n = a^{m+n}$	$7^5 \times 7^3 = 7^8$ $a^{12} \times a = a^{13}$ $4x^5 \times 2x^8 = 8x^{13}$
Division Index Law	When dividing with the same base (number or letter), subtract the powers . $a^m \div a^n = a^{m-n}$	$15^7 \div 15^4 = 15^3$ $x^9 \div x^2 = x^7$ $20a^{11} \div 5a^3 = 4a^8$
Brackets Index Laws	When raising a power to another power, multiply the powers together. $(a^m)^n = a^{mn}$	$(y^2)^5 = y^{10}$ $(6^3)^4 = 6^{12}$ $(5x^6)^3 = 125x^{18}$
Notable Powers	$p = p^1$ $p^0 = 1$	$99999^0 = 1$
Negative Powers	A negative power performs the reciprocal. $a^{-m} = \frac{1}{a^m}$	$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$
Fractional Powers	The denominator of a fractional power acts as a 'root'. The numerator of a fractional power acts as a normal power. $a^{\frac{m}{n}} = (\sqrt[n]{a})^m$	$27^{\frac{2}{3}} = (\sqrt[3]{27})^2 = 3^2 = 9$ $\left(\frac{25}{16}\right)^{\frac{3}{2}} = \left(\frac{\sqrt{25}}{\sqrt{16}}\right)^3 = \left(\frac{5}{4}\right)^3 = \frac{125}{64}$
Standard Form	$A \times 10^n$ <i>where $1 \leq A < 10$, $n = \text{integer}$</i>	$8400 = 8.4 \times 10^3$ $0.00036 = 3.6 \times 10^{-4}$
Multiplying or Dividing with Standard Form	Multiply: Multiply the numbers and add the powers . Divide: Divide the numbers and subtract the powers .	$(1.2 \times 10^3) \times (4 \times 10^6) = 8.8 \times 10^9$ $(4.5 \times 10^5) \div (3 \times 10^2) = 1.5 \times 10^3$
Adding or Subtracting with Standard Form	Convert in to ordinary numbers, calculate and then convert back in to standard form	$2.7 \times 10^4 + 4.6 \times 10^3$ $= 27000 + 4600 = 31600$ $= 3.16 \times 10^4$

Where else is the Number 1 topic used:

Percentages Decimals Fractions

Number 2 Ratio and proportion

Links to other subjects: