

# Maths Knowledge Organiser

## YEAR 8– PART 4

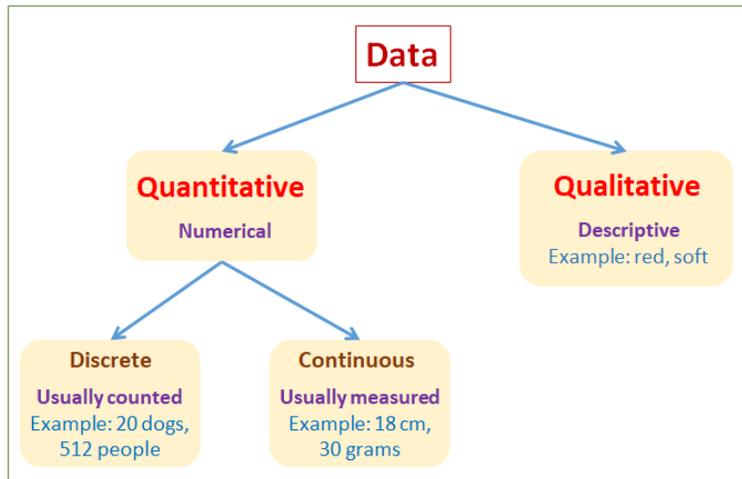
### Key Language

1	<b>Rounding</b>	When we write a number to a required degree of accuracy.
2	<b>Increase</b>	Add to a value.
3	<b>Decrease</b>	Subtract from a value
4	<b>Reduce</b>	To decrease
5	<b>Factors</b>	Whole numbers that multiply to make that number.
6	<b>Multiples</b>	Found by multiplying that number by an integer
7	<b>Profit</b>	The Income minus all expenses. Sam bought a car for £3000 and sold it for £4000. He made a £1000 profit ( $4000 - 3000 = 1000$ )
8	<b>Loss</b>	When the expenses are greater than the income. E.g. Sam bought a car for £3000 and sold it for £2000. He made a £1000 loss ( $2000 - 3000 = -1000$ )
9	<b>Interest</b>	Amount of money paid for a loan or an investment.
10	<b>Depreciation</b>	Decrease in the value of something over time
11	<b>Original amount</b>	The amount before it has been increased /decreased.
12	<b>Reverse percentage</b>	Where we find the original amount before it was increased / Decreased.
13	<b>Index</b>	Tells you how many times to multiply the number by itself.
14	<b>Indices</b>	Plural of index.
15	<b>Exponent</b>	Another word for index.
16	<b>Base</b>	Number that is being powered.
17	<b>Square root</b>	A number when multiplied by itself gives the original number. Its symbol is $\sqrt{\quad}$ . E.g. $\sqrt{9} = 3$
18	<b>Reciprocal</b>	one of a pair of numbers that when multiplied together equals 1. To get the reciprocal of a number, divide 1 by the number
19	<b>Significant figure</b>	the digits that give most meaning to a number. <ul style="list-style-type: none"> <li>• the most significant digit in an integer is the number on the left.</li> <li>• the most significant digit in a decimal fraction is the first non-zero number after the decimal point</li> </ul>
20	<b>Estimate</b>	An approximate answer. Normally you round numbers to 1 significant figure before doing the calculation.



Prefix Meaning			
Milli	$\frac{1}{1000}$	Deca	10
Centi	$\frac{1}{100}$	Hecto	100
Deci	$\frac{1}{10}$	Kilo	1000

### Types of data



### Indices and Standard Form

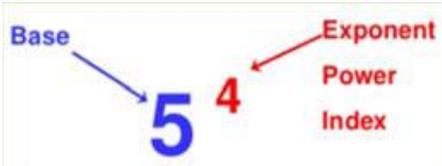
Scientific notation a way of writing very large or very small numbers using a number between 1 and 10 multiplied by a power of ten.

Numbers greater than 10 use positive powers of 10.

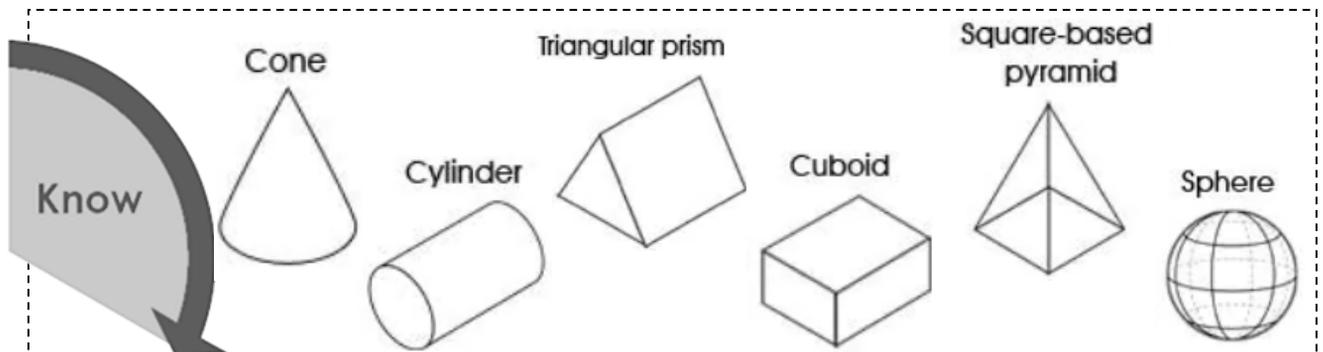
decimal notation	standard form (UK)
6,350	$6.35 \times 10^3$
678,345.96	$6.7834596 \times 10^5$

Numbers less than 1 use negative powers of 10.

decimal notation	standard form (UK)
0.0246	$2.46 \times 10^{-2}$
0.0000246	$2.46 \times 10^{-5}$



### Solids





1. What are the factors of 12?
2. Write down the first three multiples of 7.
3. What does profit mean?
4. In  $2^3$ , which number is the base?
5. If you record the colour of cars passing what type of data is that?
6. Is time discrete or continuous?
7. What prefix means  $1/100$ ?
8. Why is this number not in standard form?  $32 \times 10^5$ .
9. Increase 56 by 20.
10. What do we call numerical data?
11. What is the name of this 3d solid?
12. What does the prefix kilo mean?
13. What is interest?
14. What do we call the decrease in value of something over time?
15. What accuracy do you normally round numbers to when you estimate a calculation?
16. Estimate  $4.3 \times 12.7$
17. What is the reciprocal of 7?
18. Are 3 and  $1/3$  reciprocals of each other?
19. Draw a sketch of a cylinder.
20. Evaluate  $3^4$ .
21. James buys a pack of 10 pens for £17. He sells them for £1.50 each. Does he make a profit or loss? How much?
22. What do we call the amount before a percentage increase or decrease?
23. Evaluate  $\sqrt{64}$ .
24. What prefix is used for  $1/1000$ ?
25. How many millilitres in a litre?
26. How many centimetres in a metre?



ANSWERS

1. 1, 2, 3, 4, 6, 12
2. 7, 14, 21
3. The Income minus all expenses
4. 2
5. Qualitative
6. Continuous
7. Centi
8. The first number has to be between 1 and 10 (not 10 though)
9. 76
10. Quantitative
11. Triangular prism
12. 1000
13. Amount of money paid for a loan or an investment.

14. Depreciation
15. 1 significant figure
16.  $4 \times 10 = 40$
17.  $1/7$
18. No – they multiply together to give 1 not -1.
19. 
20. 81
21. Loss – sells them for £15 so makes a £2 loss.
22. Original amount
23. 8
24. Milli
25. 1000
26. 100

Cylinder

