

Maths Knowledge Organiser

YEAR 7 – PART 3

Key Language

1	Sum	The total of adding two or more numbers
2	Difference	The result of subtracting one number from another
3	Commutative Law	The law that says you can swap numbers around and still get the same answer. Addition and multiplication are commutative. Adding is commutative because $2 + 7 = 9$ and $7 + 2 = 9$ It doesn't matter which way round you add Subtracting is not commutative because $5 - 2 = 3$ but $2 - 5 = -3$
4	Associative Law	The law that says we can complete the calculation in any order $(4 + 7) + 1 = 4 + (7 + 1)$ $11 + 1 = 4 + 8$
5	Credit	Money going into a bank account.
6	Debit	Money going out of a bank account
7	Balance	How much money is in an account
8	Profit	When you sell something for more than it cost or when a business makes more money than it spends.
9	Loss	When you sell something for less than it cost or when a business makes less money than it spends
10	Perimeter	The distance around the outside of a shape.
11	Area	The space inside it. It is measured in square units. (mm^2 , cm^2 , m^2 , km^2)
12	Perpendicular	At right angles (90°) to. The perpendicular height of a shape makes a right angle with the base.
13	Prefix	A word at the front of another word that changes its meaning.
14	Metric	A decimal system of measurement based on 10
15	Order of operations	The convention for which part of calculations we complete first
16	Factor	A whole number that divides exactly into another number
17	Multiple	The result of multiplying a number by an integer
18	Mean	The total of all the scores or amounts, divided by how many scores or amounts there were



Metric Units

Units of **Length**

- Millimetre (mm)**-thickness of a credit card
- Centimetre (cm)-width of a paper clip
- Metre (m)** - width of a school desk
- Kilometre (km)** -around the length of ten football pitches.

Units of **weight**

- Gram (g)** - about the weight one paper clip
- Kilogram (g)** - weight of a bag of sugar.

Units of **capacity**

- Millilitre (ml)** -tip of a teaspoon
- Litre (L)** - approximately two pints of milk

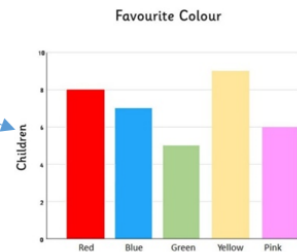
Bar Charts

Bar charts

The height of the bar chart tells you the frequency. Bars must be of equal widths and have equal gaps between them

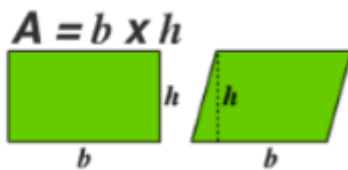
Frequency on the vertical axis

Data categories on the horizontal axis

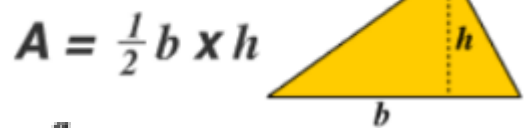


Area formula

Rectangle and Parallelogram

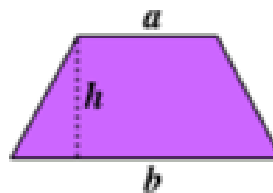


Triangle

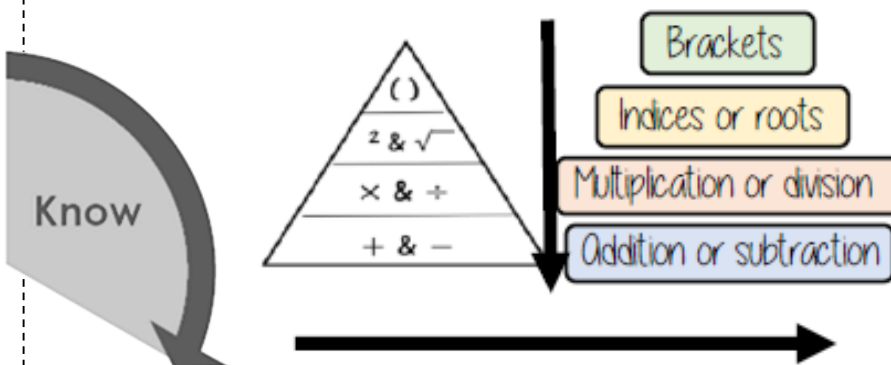


Trapezium

$A = \frac{(a + b) \times h}{2}$



Order of operations



If there are multiple operations from the same tier, work left to right.

1. What is the sum of 5 and 11?
2. What is the difference between 5 and 11?
3. Describe what a credit into a bank account means
4. What is a prefix?
5. Write down four factors of 20.
6. Write down four multiples of 20.
7. Which metric unit would you use to measure how much water is in a full bath?
8. What units would you use for area?
9. Write down the formula for calculating the area of a parallelogram.
10. Which shape has the area formula $A = \frac{1}{2}bh$?
11. What is the formula for area of a trapezium?
12. Calculate 3×2^2 .
13. John's bank balance is £20. There is a debit of £6. What is his new balance?
14. What number is the metric system based on?
15. What is the perimeter of a rectangle that measures 10cm by 6cm?
16. James buys a vase for £100. He sells it for a profit of £35. How much does he sell it for?
17. Describe two lines that are perpendicular.
18. How do you calculate the mean?
19. What is the mean of these values? 2, 5, 7, 2, 4.
20. What units would you use for measuring capacity?
21. Explain why subtraction isn't commutative.
22. What is the associative law?
23. Work out $10 - 2 + 5$.
24. What is the opposite of profit?
25. Which axes should you place frequency on?
26. What do you need to remember about the bars when you draw a bar chart?

ANSWERS

1. 16
2. 6
3. Money going in.
4. A word at the front of another word that changes its meaning
5. Any four from 1, 2, 4, 5, 10 and 20
6. 20, 40, 60, 80, 100 etc
7. Litre
8. Mm^2 , cm^2 , m^2 or km^2
9. $A = \frac{(a+b)}{2} \times h$ (must be perpendicular height)
10. Triangle
11. $3 + 9$ (in brackets)
12. 12
13. £14
14. 10

15. 32cm
16. £135
17. Two lines that cross at right angles.
18. Add up the values and divide by how many values there are.
19. 4.
20. Millilitres, litres (or centilitres)
21. Because you can't swap the numbers around. E.g. $10 - 6$ isn't the same as $6 - 10$.
22. The law that says we can complete the calculation in any order
23. 13
24. Loss
25. y axes
26. Leave a gap. Bars need to be equal width. Height of bar shows frequency.

