Knowledge Organiser - Mathematics Percentages, Money, Index laws, Equations

1	Percentages of amounts	A **percentage of an amount** can be calculated by writing the percentage as a decimal or a fraction and then multiplying it by the amount.	E.g. Find 41% of £800. We can use 0.41 as a multiplier 41%=0.41 800×0.41=328 The answer is £328	M264, M695, M684, M437, M905
2	Percentage change	When we calculate **percentage change**, we are calculating by what percentage of its **original value** something has changed. To do this we use the percentage change formula: Percentage change = Change ÷ Original ×100	The weight of a baby has increased from 4.4kg to 5.06kg Find the percentage difference in the baby's weight. 5.06−4.4=0.66kg Percentage change = Change ÷ Original ×100 Percentage change =0.664.4×100 Percentage change =15%	M437, M905, M476, M533
3	Calculating with money	In order to solve money problems in maths: **Read the question carefully and work out how to solve the word problem. Calculate the solution. Write the answer with the correct units.**	A chocolate bar costs 45p and a bottle of lemonade costs £1.20.. Frankie buys 33 bars of chocolate and 22 bottles of lemonade. She pays with a £5 note. Work out how much change Frankie gets. The total cost is, 3×0.45+2×1.20=1.35+2.40=3.753×0.45+2×1.20=1.35+2.40=3.75 Then we need to find the change, 5−3.75=1.25. Frankie's change is £1.25.£1.25.	M478, M429, M152, M803, M262, M681
4	Index laws	**Multiplying** — To multiply two powers with the same base, add the indices. $x^a \times x^b = x^{a+b}$ **Dividing** — To divide two powers with the same base, subtract the indices. $x^a \div x^b = x^{a-b}$ **Brackets** — To raise one power to another power, multiply the indices. $(x^a)^b = x^{ab}$	Simplify the expression $4x^2 \times 3x^5$. $12x^7$	M135, M671, M813, M608, M150, M120, M568
5	Solving equations	To find the **answer**/value of something **Use inverse operations** on both sides of the equation (balancing method) until you find the value for the letter.	Solve $2x - 3 = 7$ Add 3 on both sides $2x = 10$ Divide by 2 on both sides $x = 5$	M707, M795, M327, M509, M554, M957, M387