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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Ratio** |
| 1. Ratio | Ratio compares the size of **one part** to **another part**.  Written using the ‘:’ symbol. | ratio 3:1 |
| 2. Proportion | Proportion compares the size of **one part** to the size of the **whole**.  Usually written as a fraction. | In a class with 13 boys and 9 girls, the proportion of boys is and the proportion of girls is |
| 3. Simplifying Ratios | **Divide** all parts of the ratio by a **common factor**. | 5 : 10 = 1 : 2 (divide both by 5)  14 : 21 = 2 : 3 (divide both by 7) |
| 4. Ratios in the form or | **Divide** both parts of the ratio by one of the numbers to make **one part equal 1**. | 5 : 7 = 1 : in the form 1 : n  5 : 7 = : 1 in the form n : 1 |
| 5. Sharing in a Ratio | **1. Add** the total parts of the ratio.  **2. Divide** the amount to be shared by this value to find the value of one part.  **3. Multiply** this value by each part of the ratio.  Use only if you **know the total**. | Share £60 in the ratio 3 : 2 : 1.  3 + 2 + 1 = 6  60 ÷ 6 = 10  3 x 10 = 30, 2 x 10 = 20, 1 x 10 = 10  £30 : £20 : £10 |
| 6. Proportional Reasoning | Comparing two things using **multiplicative reasoning** and applying this to a new situation.  Identify one multiplicative link and use this to find missing quantities. | Image result |
| 7. Unitary Method | Finding the **value of a single unit** and then finding the necessary value by **multiplying** the single unit value. | 3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes.  3 cakes = 450g  So 1 cake = 150g (÷ by 3)  So 5 cakes = 750 g (x by 5) |
| 8. Ratio already shared | Find what **one part** of the ratio is worth using the **unitary method**. | Money was shared in the ratio 3:2:5 between Ann, Bob and Cat. Given that Bob had £16, found out the total amount of money shared.  £16 = 2 parts  So £8 = 1 part  3 + 2 + 5 = 10 parts, so 8 x 10 = £80 |
| 9. Best Buys | Find the **unit cost** by **dividing** the **price by the quantity**.  The **lowest** number is the best value. | 8 cakes for £1.28 🡪 16p each (÷by 8)  13 cakes for £2.05 🡪 15.8p each (÷by 13)  Pack of 13 cakes is best value. |

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| **Topic/Skill** | **Definition/Tips** | **Example**  **Topic: Proportion** |
| 1. Direct Proportion | If two quantities are in direct proportion, **as one increases**, the **other increases** by the **same percentage**.  If is directly proportional to , this can be written as  An equation of the form represents direct proportion, where  **is the constant of proportionality**. |  |
| 2. Inverse Proportion | If two quantities are inversely proportional, **as one increases**, the **other decreases** by the **same percentage**.  If is inversely proportional to , this can be written as  An equation of the form represents inverse proportion. |  |

**Knowledge Organiser**