

| Topic/Skill | Definition/Tips | Example |
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| 1. Fraction | A mathematical expression representing the division of one integer by another. Fractions are written as two numbers separated by a horizontal line. | $\frac{2}{7}$ is a 'proper' fraction. $\frac{9}{4}$ is an 'improper' or 'top-heavy' fraction. |
| 2. Numerator | The top number of a fraction. | In the fraction $\frac{3}{5}$, 3 is the numerator. |
| 3. Denominator | The bottom number of a fraction. | In the fraction $\frac{3}{5}$, 5 is the denominator. |
| 4. Unit Fraction | A fraction where the numerator is one and the denominator is a positive integer. | $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ etc. are examples of unit fractions. |
| 5. Reciprocal | The reciprocal of a number is 1 divided by the number. The reciprocal of x is $\frac{1}{x}$ When we multiply a number by its reciprocal we get 1. This is called the 'multiplicative inverse'. | The reciprocal of 5 is $\frac{1}{5}$ The reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$, because $\frac{2}{3} \times \frac{3}{2} = 1$ |
| 6. Mixed Number | A number formed of both an integer part and a fraction part. | $3\frac{2}{5}$ is an example of a mixed number. |
| 7. Simplifying Fractions | Divide the numerator and denominator by the highest common factor. | $\frac{20}{45} = \frac{4}{9}$ |
| 8. Equivalent Fractions | Fractions which represent the same value. | $\frac{2}{5} = \frac{4}{10} = \frac{20}{50} = \frac{60}{150} \text{ etc.}$ |
| 9. Comparing Fractions | To compare fractions, they each need to be rewritten so that they have a common denominator. Ascending means smallest to biggest. Descending means biggest to smallest. | Put in to ascending order : $\frac{3}{4}, \frac{2}{3}, \frac{5}{6}, \frac{1}{2}$. Equivalent: $\frac{9}{12}, \frac{8}{12}, \frac{10}{12}, \frac{6}{12}$ Correct order: $\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$ |
| 10. Fraction of an Amount | Divide by the bottom , times by the top | Find $\frac{2}{5}$ of £60 $60 \div 5 = 12$ $12 \times 2 = 24$ |
| 11. Adding or Subtracting Fractions | Find the LCM of the denominators to find a common denominator. Use equivalent fractions to change each fraction to the common denominator. | $\frac{2}{3} + \frac{4}{5}$ Multiples of 3: 3, 6, 9, 12, 15 .. Multiples of 5: 5, 10, 15 .. LCM of 3 and 5 = 15 |

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| | Then just add or subtract the numerators and keep the denominator the same. | $\frac{2}{3} = \frac{10}{15}$ $\frac{4}{5} = \frac{12}{15}$ $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$ |
| 12. Multiplying Fractions | Multiply the numerators together and multiply the denominators together. | $\frac{3}{8} \times \frac{2}{9} = \frac{6}{72} = \frac{1}{12}$ |
| 13. Dividing Fractions | ‘Keep it, Flip it, Change it – KFC’ Keep the first fraction the same Flip the second fraction upside down Change the divide to a multiply Multiply by the reciprocal of the second fraction. | $\frac{3}{4} \div \frac{5}{6} = \frac{3}{4} \times \frac{6}{5} = \frac{18}{20} = \frac{9}{10}$ |
| 14. Probability | The likelihood/chance of something happening. Is expressed as a number between 0 (impossible) and 1 (certain) . Can be expressed as a fraction, decimal, percentage or in words (likely, unlikely, even chance etc.) | |
| 15. Probability Notation | P(A) refers to the probability that event A will occur. | P(Red Queen) refers to the probability of picking a Red Queen from a pack of cards. |
| 16. Theoretical Probability | $\frac{\text{Number of Favourable Outcomes}}{\text{Total Number of Possible Outcomes}}$ | Probability of rolling a 4 on a fair 6-sided die = $\frac{1}{6}$. |
| 17. Relative Frequency Experimental Probability | $\frac{\text{Number of Successful Trials}}{\text{Total Number of Trials}}$ | A coin is flipped 50 times and lands on Tails 29 times. The relative frequency of getting Tails = $\frac{29}{50}$. |