| Topic/Skill | Definition/Tips | Example |
| :---: | :---: | :---: |
| 1. Algebraic Fraction | A fraction whose numerator and denominator are algebraic expressions. | $\frac{6 x}{3 x-1}$ |
| 2. Adding/ Subtracting Algebraic Fractions | For $\frac{a}{b} \pm \frac{c}{d}$, the common denominator is bd $\frac{a}{b} \pm \frac{c}{d}=\frac{a d}{b d} \pm \frac{b c}{b d}=\frac{a d \pm b c}{b d}$ | $\begin{aligned} & \frac{1}{x}+\frac{x}{2 y} \\ = & \frac{1(2 y)}{2 x y}+\frac{x(x)}{2 x y} \\ = & \frac{2 y+x^{2}}{2 x y} \end{aligned}$ |
| 3. Multiplying <br> Algebraic <br> Fractions | Multiply the numerators together and the denominators together. $\frac{a}{b} \times \frac{c}{d}=\frac{a c}{b d}$ | $\begin{aligned} & \frac{x}{3} \times \frac{x+2}{x-2} \\ = & \frac{x(x+2)}{3(x-2)} \\ = & \frac{x^{2}+2 x}{3 x-6} \end{aligned}$ |
| 4. Dividing Algebraic Fractions | Multiply the first fraction by the reciprocal of the second fraction. $\frac{a}{b} \div \frac{c}{d}=\frac{a}{b} \times \frac{d}{c}=\frac{a d}{b c}$ | $\begin{aligned} & \frac{x}{3} \div \frac{2 x}{7} \\ = & \frac{x}{3} \times \frac{7}{2 x} \\ = & \frac{7 x}{6 x}=\frac{7}{6} \end{aligned}$ |
| 5. Simplifying Algebraic Fractions | Factorise the numerator and denominator and cancel common factors. | $\frac{x^{2}+x-6}{2 x-4}=\frac{(x+3)(x-2)}{2(x-2)}=\frac{x+3}{2}$ |

