Topic: Algebraic Fractions

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