

C3 - Chapter 1 - Algebraic fractions - Summary

* Reminder

① The degree of an expression is the greatest power of x

eg $-3x^2 + 2$ is of degree 2

$(x+2)^2(x+3)$ is of degree 3

② A fraction is improper if the degree of the numerator is greater than or equal to the degree of the denominator

e.g. $\frac{x+1}{x+2}$ is improper $\frac{x^2+3x}{x-1}$ is improper $\frac{x^2-5}{x^3+2x}$ is proper

* Any polynomial $F(x)$ can be put in the form

$$F(x) = Q(x) \cdot \text{divisor} + \text{remainder}$$

If we use long division

$$F(x) \begin{array}{l} \text{divisor} \\ \hline \text{remainder} \end{array} Q(x)$$

just like

$$7 \begin{array}{l} \text{divisor} \\ \hline 3 \\ \text{quotient} \\ \hline 1 \end{array} \begin{array}{l} \text{remainder} \\ \hline 2 \end{array}$$

$$\frac{7}{3} = 2 + \frac{1}{3} \quad 7 = (2 \times 3) + 1$$

* You can solve questions either by long division or by equating coefficients. You can choose what method to use unless the question asks for a specific method.

* Always remember to write your final answer in the required form.