## Partial Fractions of Improper Rational Functions.

If degree of $f(x)$ is greater than or equal to degree of $g(x)$, then $\frac{f(x)}{g(x)}$ is called an improper rational function and every rational function can be transformed to a proper rational function by dividing the numerator by the denominator.
We divide the numerator by denominator until a remainder is obtained which is of lower degree than the denominator.
i.e., $\frac{f(x)}{g(x)}=Q(x)+\frac{R(x)}{g(x)}$, where degree of $R(x)<$ degree of $g(x)$.

For example, $\frac{x^{3}}{x^{2}-5 x+6}$ is an improper rational function and can be expressed as $(x+5)+\frac{19 x-30}{x^{2}-5 x+6}$ which is the sum of a polynomial $(x+5)$ and a proper rational function $\frac{19 x-30}{x^{2}-5 x+6}$.

