

Methods of Integration

If you cannot simply integrate using the basic formulas above, try one of the following methods:

- **Integration by substitution:** a method by which some variable is substituted for part of the function $f(x)$ (generally some complicated function within the larger function) in order to make integration simpler.
- **Integration using long division:** If the integral involves a quotient in which the degree of the numerator is greater than or equal to the degree of the denominator, divide the numerator by the denominator.
- **Integration by parts:** a method of integrating two functions multiplied together (the opposite of the product rule for derivatives), following the formula:

$$\int u \, dv = uv - \int v \, du$$