5.10 Indefinite integrals

Checklist

What you should know

By the end of this subtopic you should be able to:

- find the integral of a function using the following standard integrals:
  - $\int x^n \, \mathrm{d}x = \frac{x^{n+1}}{n+1} + C, n \neq -1$
  - $\int (ax+b)^n \, \mathrm{d}x = \frac{(ax+b)^{n+1}}{a(n+1)} + C, n \neq -1$
  - $\int \frac{1}{x} \, \mathrm{d}x = \ln|x| + C$
  - $\int \frac{1}{ax+b} \, \mathrm{d}x = \frac{1}{a}\ln|ax+b| + C$
  - $\int e^x \, \mathrm{d}x = e^x + C$
  - $\int e^{ax+b} \, \mathrm{d}x = \frac{1}{a}e^{ax+b} + C$
  - $\int \sin x \, \mathrm{d}x = -\cos x + C$
  - $\int \sin(ax+b) \, \mathrm{d}x = \frac{-\cos(ax+b)}{a} + C$
  - $\int \cos x \, \mathrm{d}x = \sin x + C$
  - $\int \cos(ax+b) \, \mathrm{d}x = \frac{\sin(ax+b)}{a} + C$
- find the indefinite integral of functions by inspection and substitution.