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5.16 Further integration

Checklist

What you should know

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

- find indefinite integrals using integration by substitution

- find definite integrals using integration by substitution by either:
    - converting the indefinite integral back to x before applying the limits; or
    - converting the limits over to u before application

- find indefinite integrals using integration by parts

- find definite integrals using integration by parts

$$\int u\frac{\mathrm{d}v}{\mathrm{d}u} = uv - \int v\frac{\mathrm{d}u}{\mathrm{d}x} \text{ or } \int u\mathrm{d}v = uv - \int v\mathrm{d}u$$

- integrate by parts multiple times or use tabular integration.

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