Calculus I
$$\S \int Ae^{ax+b}\mathbf{d}x, \textbf{part 2}$$

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Example (Substitution Rule)

Find $\displaystyle\int e^{3x}\mathrm{d}x$.

$$\text{Let} \quad u = 3x.$$

$$\text{Then} \quad \mathrm{d}u = 3\mathrm{d}x$$

$$\mathrm{d}x = \frac{1}{3}\mathrm{d}u.$$

$$\text{Substitute:} \quad \int e^{3x}\mathrm{d}x = \int \frac{1}{3}e^{u}\,\mathrm{d}u$$

$$= \frac{1}{3}e^{u} + C$$

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