

$$a) \int 3 dx = 3 \int 1 dx = 3x + C$$

$$b) \int 5x dx = 5 \int x^1 dx = 5 \cdot \left(\frac{1}{2} x^2 \right) + C \\ = \frac{5}{2} x^2 + C$$

$$c) \int (2x+1) dx = \int 2x dx + \int 1 dx \\ = 2 \int x^1 dx + x = 2 \cdot \frac{1}{2} x^2 + x + C \\ = x^2 + x + C$$

$$d) \int (5x-4) dx = \int 5x dx - \int 4 dx \\ = 5 \int x^1 dx - 4 \int 1 dx = \frac{5}{2} x^2 - 4x + C$$

1.3.3

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$$e) \quad 2 \int x^2 dx - 3 \int x dx + 2 \int 1 dx =$$

$$2 \cdot \frac{1}{3} x^3 - 3 \cdot \frac{1}{2} x^2 + 2x + C =$$

$$\frac{2}{3} x^3 - \frac{3}{2} x^2 + 2x + C$$

$$f) \quad 5 \int x^3 dx = 5 \cdot \frac{1}{4} x^4 + C = \frac{5}{4} x^4 + C$$

$$g) \quad -3 \int x^4 dx = -\frac{3}{5} x^5 + C$$

$$h) \quad 3 \int x^5 dx + 2 \int x^4 dx - \int 1 dx =$$

$$3 \cdot \frac{1}{6} x^6 + \frac{2}{5} x^5 - x + C =$$

$$\frac{1}{2} x^6 + \frac{2}{5} x^5 - x + C$$

1.3.3

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$$\begin{aligned} i) \int \cos x \, dx + \int \sin x \, dx &= \sin x + (-\cos x) + C \\ &= \sin x - \cos x + C \end{aligned}$$

$$j) \int (1 + \tan^2 x) \, dx = \tan x + C$$