

151. 不定積分②

$$(1) \frac{2}{7}x^3\sqrt{x}+C \quad (2) x^2-x+3\log|x|+\frac{1}{x}+C \quad (3) -5\cos x-4\sin x+C$$

$$(4) 3\tan x+\frac{2}{\tan x}+C \quad (5) 2e^x-\frac{1}{3}x^3+C \quad (6) \frac{1}{3}e^{3x}+3\log|x|+C \quad (C \text{ はいずれも積分定数})$$

次の不定積分を求めよ。

$$(1) \int x^2\sqrt{x} dx = \int x^2 \cdot x^{\frac{1}{2}} dx = \int x^{\frac{5}{2}} dx = \frac{2}{7}x^{\frac{7}{2}} + C = \frac{2}{7}x^3\sqrt{x} + C$$

$$(2) \int \frac{2x^3-x^2+3x-1}{x^2} dx = \int \left(2x-1+\frac{3}{x}-\frac{1}{x^2} \right) dx = x^2-x+3\log|x|+\frac{1}{x}+C$$

$$(3) \int (5\sin x-4\cos x) dx = -5\cos x-4\sin x+C$$

$$(4) \int \left(\frac{3}{\cos^2 x} - \frac{2}{\sin^2 x} \right) dx = 3\tan x + \frac{2}{\tan x} + C$$

$$(5) \int (2e^x - x^2) dx = 2e^x - \frac{1}{3}x^3 + C$$

$$(6) \int \left(e^{3x} + \frac{3}{x} \right) dx = \frac{1}{3}e^{3x} + 3\log|x| + C$$