

2 次の定積分を計算せよ。[必要に応じて三角関数の積を和に直す公式を適用する]

(1)  $\int_{-1}^1 (x^5 + x^4 + x^3 + x^2 + x + 1) dx$

(2)  $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin 2x \cos x dx$

(3)  $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin 2x \sin x dx$

(4)  $\int_0^{\frac{\pi}{2}} x \cos x dx$

(5)  $\int_1^e x \log x dx$

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(1)  $\frac{46}{15}$     (2) 0    (3)  $\frac{4}{3}$     (4)  $\frac{\pi}{2} - 1$     (5)  $\frac{e^2 + 1}{4}$