

Evaluate the following integrals:

$$\int e^x \cos 4x dx$$

$$\int (x-1)^2 \sin x dx$$

$$\int \sin^5 x \cos^3 x dx$$

$$\int \frac{1}{4x - x^2 - 3} dx$$

$$\int \frac{4}{4x^2 + 4x + 5} dx$$

$$\int \cos^2(x-2) \sin^3(x-2) dx$$

$$\int_1^2 \frac{1}{1-x^2} dx$$