

**Example 1.** Find  $\int x \sin x \, dx$

**Example 2.** (practice) Find  $\int x \cos 2x \, dx$

**Example 3.** Find  $\int \ln x \, dx$

**Example 4.** (practice) Calculate  $\int_1^e \ln x \, dx$

**Example 5.** Find  $\int x^2 e^x \, dx$

**Example 5'.** Find  $\int \frac{x}{e^x} \, dx$

**Example 6.** Find  $\int e^x \sin x \, dx$

**Example 7.** (practice) Find  $\int e^{2x} \cos x \, dx$

**Example 8.** Find  $\int_0^1 \tan^{-1} x \, dx$

**Example 9.** (practice) Find  $\int \sin^{-1} x \, dx$

**Example 10.** Find  $\int \sin \sqrt{x} \, dx$

**Example 11.** Find  $\int \sin^3 x \, dx$

**Example 12.** (practice) Find  $\int x^2 \ln x \, dx$