

Evaluate the following integrals.

$$1. \int e^x \cos(x) \, dx$$

$$2. \int x^2 \sin(x^3) \, dx$$

$$3. \int \frac{\sin(x)}{1 + \cos(x)^2} \, dx$$

$$4. \int x \ln(x) \, dx$$

$$5. \int \arcsin(x) \, dx$$

$$6. \int \frac{e^{\sqrt{x}}}{\sqrt{x}} \, dx$$