

Integration by Parts

1. Use integration by parts to evaluate the following indefinite integrals:

(a) $\int x \cos(x) dx$

(b) $\int \arctan(x) dx$

(c) $\int x^2 \cos(x) dx$

(d) $\int e^x \cos(x) dx$

(e) $\int \sin^n(x) dx$

2. Use integration by parts to evaluate the following definite integrals:

(a) $\int_0^1 \arctan(x) dx$

(b) $\int_{-1}^1 \sin^3(x) dx$

3. Evaluate the following indefinite integrals:

(a) $\int \cos(x) \sin^3(x) dx$

(b) $\int \tan^6(x) \sec^4(x) dx$