Exercise 12. Integration by parts

Determine the integrals in Problems 1 to 5 using integration by parts.

1. $\int xe^{2x}\,dx$

2. $\int \dfrac{4x}{e^{3x}}\,dx$

3. $\int x\sin x\,dx$

4. $\int 5\theta\cos 2\theta\,d\theta$

5. $\int 3t^2 e^{2t}\,dt$

Exercise 13. Integration by parts

Determine the integrals in Problems 1 to 5 using integration by parts.

1. $\displaystyle\int 2x^2 \ln x \, dx$

2. $\displaystyle\int 2\ln 3x \, dx$

3. $\displaystyle\int x^2 \sin 3x \, dx$

4. $\displaystyle\int 2e^{5x} \cos 2x \, dx$

5. $\displaystyle\int 2\theta \sec^2 \theta \, d\theta$ $[2[\theta \tan \theta - \ln(\sec \theta)] + c]$

Evaluate the integrals in Problems 6 & 7, correct to 4 significant figures.

6. $\displaystyle\int_1^2 x \ln x \, dx$

7. $\displaystyle\int_0^1 2e^{3x} \sin 2x \, dx$