

Worksheet 3.1: Integration by parts

Write the general formula for integration-by-parts:

1. $\int x^2 e^x dx =$

2. $\int_0^1 (5x + 1) \sin x dx =$

3. $\int \arctan x dx =$

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

5. Find the volume of the solid obtained by revolving the region bounded by the graph of $f(x) = e^{-x}$, the x -axis, the y -axis, and the line $x = 1$ about the y -axis.

6.
$$\int_0^1 e^{\sqrt{x}} dx =$$

7.
$$\int_{-1}^1 x 5^x dx =$$

8.
$$\int x \sec^2 x dx =$$