

Math 232 Worksheet 4 - Integration by Parts

1. Evaluate the integral using integration by parts.

$$(1) \int x \cos x \, dx \quad (2) \int x e^{-x} \, dx \quad (3) \int x \ln x \, dx \quad (4) \int e^x \cos x \, dx$$

$$(5) \int_0^{\pi/2} \cos^3 x \, dx \quad (6) \int_0^1 \arcsin x \, dx \quad (7) \int_0^1 e^{\sqrt{x}} \, dx$$

Answer keys

- (1) $x \sin x + \cos x + C$
- (2) $-e^{-x}(x + 1) + C$
- (3) $\frac{1}{4}x^2(2 \ln x - 1) + C$
- (4) $\frac{1}{2}e^x(\cos x + \sin x) + C$
- (5) $2/3$
- (6) $\frac{\pi}{2} - 1$
- (7) 2