

# Math 2300-013: Integration By Parts

Compute the following integrals using integration by parts:

1.  $\int x \cos x \, dx$

2.  $\int_0^2 x e^x \, dx$

3.  $\int_4^9 \frac{\ln(y)}{\sqrt{y}} \, dy$

4.  $\int \theta^2 \sin(3\theta) d\theta$

5.  $\int \arctan x dx$

6.  $\int \ln x dx$

7.  $\int (\ln x)^2 dx$

8.  $\int_0^1 \frac{x+1}{e^x} dx$

9.  $\int e^t \cos t dt$

10.  $\int \sec^3 x \, dx$

11.  $\int_1^{\sqrt{3}} \arctan\left(\frac{1}{x}\right) \, dx$