

Evaluate the following integrals using integration by parts, and *check your answers!!*

1.  $\int x \ln(x) dx$

2.  $\int xe^x dx$

3.  $\int x^3 e^{x^2} dx$  (Hint:  $u = x^2$  and  $dv = xe^{x^2} dx$  )

4.  $\int \ln(x) dx$  (Hint:  $u = \ln(x)$  and  $dv = dx$ )

5.  $\int e^x \cos(x) dx$