

Evaluate the following integrals.

1.  $\int_1^{e^3} \frac{\ln(x)}{x^2} dx$

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

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

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

5.  $\int x^3 \cos(x^4) dx$

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

7.  $\int x^3 \sin(x^2) dx$

8.  $\int \arctan(x) dx$