

Evaluate the following integrals

1. $\int_0^2 4x \cos(\pi x) dx$

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

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

Hint: $u = x^2$ and
 $dv = x e^{x^2} dx$

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

5. $\int e^{\sqrt{x}} dx$

Hint: $u = \sqrt{x}$

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