

Evaluate the following integrals

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

2. $\int \frac{5}{\sqrt{5 - 4x - x^2}} \, dx$ Hint: Complete the square

3. $\int \cos(x) \sin(x) e^{\sin(x)} \, dx$

4. $\int \arctan(x) \, dx$

5. $\int x^5 e^{x^3} \, dx$