Evaluate the following integrals.

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

2. $\displaystyle\int \frac{e^x}{1 + e^{2x}}\,dx$

3. $\displaystyle\int \cos(x)\sin(x)e^{\sin(x)}\,dx$ (Be clever with parts or substitute $u = \sin(x)$)

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

5. $\displaystyle\int x^3 \sin(x^2)\,dx$

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

7. $\displaystyle\int_2^3 \frac{x^2 - 1}{x^3 - 3x}\,dx$

8. $\displaystyle\int e^x \sin(e^x)\,dx$