Evaluate the following integrals.

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

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

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

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. $\displaystyle\int_{0}^{\pi} e^x \sin(e^x)\, dx$