Evaluate the integrals

1. $\displaystyle\int_0^{\pi/4} \cos^5 2x \, \sin^2 2x \, dx$

2. $\displaystyle\int \tan^3 \theta \, d\theta$

3. $\displaystyle\int \frac{\sin^4 x}{\cos^6 x} \, dx$

4. $\displaystyle\int \csc^2 x \, \cot x \, dx$

5. $\displaystyle\int \tan^3 x \, \sec^3 x \, dx$

6. $\displaystyle\int_0^{\pi} \sec^2 x \, dx$

7. $\displaystyle\int \frac{dx}{1 + \cos x}$

8. $\displaystyle\int \cos^2 4x \, dx$

9. $\displaystyle\int \sin 3x \cos^6 3x \, dx$

10. $\displaystyle\int_0^{\pi/2} \cos^4 x \, dx$

11. $\displaystyle\int_0^{\pi/6} \sin^5 x \, dx$

12. $\displaystyle\int \tan^4 x \, dx$

13. $\displaystyle\int \operatorname{sech}^2 x \, \sinh x \, dx$

14. $\displaystyle\int_0^{\ln\left(\sqrt{3}+2\right)} \frac{\cosh x}{\sqrt{4 - \sinh^2 x}} \, dx$