Evaluate the integrals

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

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

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

4. $\int \tan^3 x \, \sec^3 x \, dx$

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

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

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

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

9. $\int \tan^4 x \, dx$

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