1. $\frac{\sin 2t}{1+\cos 2t} = \tan t$

2. $1 \pm \sin x = \left(\sin \frac{x}{2} \pm \cos \frac{x}{2}\right)^2$

3. $\int \frac{1}{1+\sin t} dt = \int \frac{1-\sin t}{1-\sin t^2} = \int \sec^2 t dt$

4. $\int 1 dx = \int \sqrt{2x+1} d\sqrt{2x+1}$

5. $\int \ln(1+\tan t) dt = \int \ln \frac{\cos t + \sin t}{\cos t} dt = \int \ln \frac{\cos t + \cos(\frac{\pi}{2} - t)}{\cos t} dt = \int \ln \frac{2\cos\frac{\pi}{4}\cos(\frac{\pi}{4} - t)}{\cos t} dt =$ 和差化积

6. $\int \frac{1}{\sin^3 t} dt = \int \frac{\sin^2 t + \cos^2 t}{\sin^3 t} dt$

7. $\int \cot^2 \frac{x}{2} dx = \int \csc^2 \frac{x}{2} - 1 dx$

8. $\int \frac{1}{1+\sin^2 x} dx = \int \frac{\frac{1}{\cos^2 x}}{\frac{1}{\cos^2 x} + \tan^2 t} = \int \frac{d\tan t}{1+2\tan^2 x} = \frac{1}{\sqrt{2}} \int \frac{d(\sqrt{2}\tan x)}{1+(\sqrt{2}\tan x)^2}$

9. $\int \frac{1}{1+t^3} dt = \int_0^x \frac{1-t^2+t^2}{1+t^3} dt$

10. $\int \frac{1}{1+t^3} dt = \frac{1}{3} \int \frac{1}{1+x} - \frac{1}{6} \int \frac{2x-1}{x^2-x+1} dx + \frac{1}{2} \int \frac{1}{x^2-x+1} dx$

11. $\int \frac{dx}{(1+x^2)^{\frac{3}{2}}} = \frac{x}{\sqrt{1+x^2}} + C$

12. 方程 $x^2 - Xx + Y = 0; X = x_1 + x_2; Y = x_1 \dot{x}_2$