THE SUBSTITUTION t = tan(A/2)

2 Find: **(a)** $\int \frac{\sin x}{2-\cos x}\,dx$ **(b)** $\int \frac{dx}{3+2\cos x}$ **(c)** $\int \frac{dx}{1+\sin x}$

THE SUBSTITUTION t = tan(A/2)

3 Evaluate: **(a)** $\int_0^{\frac{\pi}{3}} \sec x \, dx$ **(b)** $\int_0^{\frac{\pi}{2}} \frac{\sin\theta}{2+\cos\theta} d\theta$

THE SUBSTITUTION t = tan(A/2)

4 Find: **(a)** $\int \frac{dx}{5+4\cos x}$

4 Find: **(d)** $\int \frac{dx}{3-\cos x}$

THE SUBSTITUTION t = tan(A/2)

4 Find: (c) $\int \frac{\sin\theta}{2+\sin\theta} d\theta$

Tip: Start by adding and subtracting 2 at the numerator.

4 Find: **(b)** $\int \frac{\cos\theta}{2-\cos\theta}\,d\theta$

4 Find: **(e)** $\int \frac{\cos x}{\sin x + 1} dx$

4 Find: **(g)** $\int \frac{\tan x}{1+\cos x}\,dx$

THE SUBSTITUTION t = tan(A/2)

5 Using an appropriate substitution of the type $t = \tan x$, find: **(a)** $\int \frac{dx}{1+\sin 2x}$

5 Using an appropriate substitution of the type $t = \tan x$, find: **(b)** $\int \frac{\tan 2x}{1+\cos 2x}\,dx$

THE SUBSTITUTION t = tan(A/2)

7 Use the substitution $t = \tan\frac{x}{2}$ to find $\int \frac{d\theta}{1+\cos\theta+\sin\theta}$.

THE SUBSTITUTION t = tan(A/2)

9 Use the substitution $t = \tan\theta$ to find the exact value of $\int_0^{\frac{\pi}{4}} \frac{d\theta}{2+\sin 2\theta}$.

THE SUBSTITUTION t = tan(A/2)

10 Using the substitution $t = \tan\frac{x}{2}$, or otherwise, evaluate $\int_{\frac{\pi}{3}}^{\frac{\pi}{2}} \frac{dx}{12\sin x - 5\cos x + 13}$.