

$$= \frac{\sin^2 x + \sin^2 x + 2\sin x \cos x}{\cos^2 x + \cos^2 x + 2\sin x \cos x}$$

$$= \frac{2\sin^2 x + 2\sin x \cos x}{2\cos^2 x + 2\sin x \cos x}$$

$$= \frac{2\sin x (\sin x + \cos x)}{2\cos x (\cos x + \sin x)} = \frac{\sin x}{\cos x} = \underline{\underline{\tan x}}$$

$$33) \cos^6 x - \sin^6 x = \cos 2x \left(1 - \frac{1}{4} \sin^2 2x\right)$$

$$\rightarrow \cos 2x \left(1 - \frac{1}{4} \sin^2 2x\right) =$$

$$= \cos 2x \left(1 - \frac{1}{4} (2\sin x \cos x)^2\right)$$

$$= \cos 2x \left(1 - \sin^2 x \cos^2 x\right)$$

$$= \cos 2x \left(1 - (1 - \cos^2 x) \cos^2 x\right)$$

$$= \cos 2x \left(1 - \cos^2 x + \cos^4 x\right)$$

$$= (\cos^2 x - \sin^2 x) (\sin^2 x + \cos^4 x)$$

$$= \cos^2 x \sin^2 x + \cos^6 x - \sin^4 x - \sin^2 x \cos^4 x$$

$$= \cos^2 x \sin^2 x + \cos^6 x - \sin^4 x - \sin^2 x (\cos^2 x)^2$$

$$= \cos^2 x \sin^2 x + \cos^6 x - \sin^4 x - \sin^2 x (1 - \sin^2 x)$$

$$= \cos^2 x \sin^2 x + \cos^6 x - \sin^4 x - \sin^2 x (1 - 2\sin^2 x + \sin^4 x)$$