

28.

$$a) \underbrace{2 \sin 3\theta \cos 3\theta}_{=} =$$

$$= 2 \sin 6\theta$$

$$b) 6 \sin \theta \cos \theta =$$

$$= 3 \underbrace{2 \sin \theta \cos \theta}_{=} =$$

$$= 3 \sin 2\theta$$

$$c) \frac{1}{2} \sin \frac{\theta}{2} \cos \frac{\theta}{2} =$$

$$= \frac{1}{4} 2 \sin \frac{\theta}{2} \cos \frac{\theta}{2}$$

$$= \frac{1}{4} \sin \theta$$

$$d) \cos^2 \frac{3\theta}{2} - \sin^2 \frac{3\theta}{2} =$$

$$= \cos 3\theta$$

$$e) 1 - 2 \sin^2 \frac{\theta}{4} =$$

$$= 1 - \sin^2 \frac{\theta}{4} - \sin^2 \frac{\theta}{4}$$

$$= \cos^2 \frac{\theta}{4} - \sin^2 \frac{\theta}{4}$$

$$= \frac{\cos \frac{\theta}{4} \cos \frac{\theta}{4} - \sin \frac{\theta}{4} \sin \frac{\theta}{4}}{1}$$

$$= \cos \left(\frac{\theta}{4} + \frac{\theta}{4} \right) = \underline{\underline{\cos \frac{\theta}{2}}}$$

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$$f) 2 \cos^2 \left(\frac{7\theta}{2} \right) - 1 =$$

$$= \cos^2 \frac{7\theta}{2} + \cos^2 \frac{7\theta}{2} - 1$$

$$= \cos^2 \frac{7\theta}{2} - \sin^2 \frac{7\theta}{2}$$

$$= \cos \frac{7\theta}{2} \cos \frac{7\theta}{2} - \sin \frac{7\theta}{2} \sin \frac{7\theta}{2}$$

$$= \cos \left(\frac{7\theta}{2} + \frac{7\theta}{2} \right)$$

$$= \cos 7\theta$$

$$g) 8 \sin^2 2\theta - 4 =$$

$$= 4 \sin^2 2\theta + 4 \sin^2 2\theta - 4$$

$$= 4 \sin^2 2\theta + 4 (\sin^2 2\theta - 1)$$

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

$$= -4 (\cos^2 2\theta - \sin^2 2\theta)$$

$$= \underline{\underline{-4 \cos 4\theta}}$$

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

$$= \cos \left(\frac{\pi - x}{2} \right) \quad \begin{matrix} \swarrow \text{ver item} \\ \downarrow (e) \end{matrix}$$

$$= \sin x$$