

1a) $\frac{24}{25}$

c) $\frac{\sqrt{10}}{10}$

3) a) $\frac{24}{25}$

c) $\frac{2\sqrt{5}}{5}$

b) $\frac{7}{25}$

d) $\frac{3\sqrt{10}}{10}$

b) $-\frac{7}{25}$

d) $-\frac{\sqrt{5}}{5}$

5) a) $-\frac{2\sqrt{2}}{3}$

c) $\sqrt{\frac{3+\sqrt{6}}{6}}$

d) $\sqrt{\frac{3-\sqrt{6}}{6}}$

b) $\frac{1}{3}$

13) $\frac{\sqrt{2-\sqrt{2}}}{2}$

14) $\frac{\sqrt{2+\sqrt{2}}}{2}$

15) $1-\sqrt{2}$

16) $\sqrt{2}-1$

17) $-\frac{\sqrt{2+\sqrt{3}}}{2}$

18) $-\frac{\sqrt{2-\sqrt{3}}}{2}$

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

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

$$= 1(\cos^2 \theta - \sin^2 \theta)$$

$$= \cos(2\theta) = \cos(2\theta)$$

42.) $\tan \frac{\theta}{2} = \csc \theta - \cot \theta$

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

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

$$\tan \frac{\theta}{2} = \tan \frac{\theta}{2}$$

46) $\frac{\cos \theta + \sin \theta}{\cos \theta - \sin \theta} - \frac{\cos \theta - \sin \theta}{\cos \theta + \sin \theta}$

$$\frac{(\cos \theta + \sin \theta)^2 - (\cos \theta - \sin \theta)^2}{\cos^2 \theta - \sin^2 \theta}$$

$$\frac{\cos^2 \theta + 2\cos \theta \sin \theta + \sin^2 \theta - (\cos^2 \theta - 2\cos \theta \sin \theta + \sin^2 \theta)}{\cos^2 \theta - \sin^2 \theta}$$

$$\frac{\cos^2 \theta + 2\cos \theta \sin \theta + \sin^2 \theta - \cos^2 \theta + 2\cos \theta \sin \theta - \sin^2 \theta}{\sin(2\theta) + \sin(2\theta)}$$