

تمرين 1: احسب بدلالة $\cos x$ و $\sin x$:

$$D = \cos\left(\frac{\pi}{2} - x\right)$$

$$C = \sin\left(\frac{\pi}{6} - x\right)$$

$$B = \cos\left(\frac{\pi}{4} + x\right)$$

$$A = \sin\left(\frac{\pi}{4} + x\right)$$

$$E = 2 \cos\left(\frac{\pi}{6} - x\right) + \sqrt{2} \sin\left(\frac{\pi}{4} - x\right)$$

$$F = \sin(2x) - 3 \cos\left(\frac{\pi}{6} + x\right)$$

$$G = \cos\left(x + \frac{\pi}{3}\right) - \sin\left(\frac{\pi}{3} - x\right) - \sin(x)$$

$$H = \cos x + \cos\left(x + \frac{2\pi}{3}\right) + \cos\left(x + \frac{4\pi}{3}\right)$$

تمرين 2:

1, اكتب على شكل $\cos(x+b)$: $I = \frac{1}{2} \cos x + \frac{\sqrt{3}}{2} \sin x$ ، $J = \frac{\sqrt{2}}{2} \sin x + \frac{\sqrt{2}}{2} \cos x$

2, اكتب على شكل $\sin(x+b)$: $E = \frac{\sqrt{2}}{2} \sin x - \frac{\sqrt{2}}{2} \cos x$ ، $F = \frac{\sqrt{3}}{2} \cos x + \frac{1}{2} \sin x$

تمرين 3:

1, بسط ما يلي : $G = \cos(2a)\cos a + \sin(2a)\sin a$ ، $H = \cos(7a)\cos(3a) - \sin(7a)\sin(3a)$

2, $I = \frac{1}{2} \sin(3a) + \frac{\sqrt{3}}{2} \cos(3a)$ ، $J = \frac{\sqrt{2}}{2} \cos\left(\frac{a}{2}\right) + \frac{\sqrt{2}}{2} \sin\left(\frac{a}{2}\right)$

تمرين 4: ليكن $x \in \mathbb{R}$

1, بين أن : $\cos\left(x + \frac{\pi}{6}\right) \cos\left(x - \frac{\pi}{6}\right) = \cos^2 x - \frac{1}{4}$

2, بين أن : $(\sin x + \sin 5x)^2 + (\cos x + \cos 5x)^2 = 4 \cos^2 2x$

3, بين أن : $2 \sin^2\left(\frac{\pi}{8} + x\right) = 1 - \frac{\sqrt{2}}{2} (\cos 2x - \sin 2x)$