مثال) معادلات زیر را حل و بحث کنید .

1) $2\sin x.\cos x - m\cos x = 0$

2) $\sin 4x - \sin 2x = k\sin x$

3) $m\tan x - m + 1 = 0$

4) $m\tan^2 x - 2\tan x + 1 = 0$

5) $2\sin x - m + 1 = 0 \quad , \quad 0 < x < \dfrac{\pi}{6}$

6) $4\cos x.\cos\left(\dfrac{\pi}{4} - x\right) = 2m + \sqrt{2} - 2 \quad , \quad -\dfrac{\pi}{8} < x < \dfrac{3\pi}{8}$

7) $\sin^2 x - (2k + 1)\sin x + 2k = 0$

8) $\sin 6x - (k - 4)\cos 4x - \sin 2x = 0$

9) $\tan^2 x - (m - 1)\tan x + 1 = 0$

10) $\dfrac{\cos^4 m}{\cos^2 x} + \dfrac{\sin^4 m}{\sin^2 x} = 1$

11) $\sin 4x - \sin 2x = m\sin x \quad , \quad -\dfrac{\pi}{9} < x < \dfrac{\pi}{9}$

12) $\sin 4x = k\tan 2x \quad , \quad -\dfrac{\pi}{8} < x < \dfrac{\pi}{8}$

13) $k\cos x.\sin\left(\dfrac{\pi}{4} - x\right) = \sqrt{2} \quad ; \quad 0 < x < \dfrac{\pi}{4} \quad , \quad k > 0$

14) $k\sin 2x + 4\sin\left(x - \dfrac{\pi}{4}\right) = 4 - k \quad ; \quad \dfrac{5\pi}{12} < x < \dfrac{13\pi}{12} \quad , \quad k > 0$

15) $\sin x + \sin 3x + \sin 5x = \dfrac{k}{2\sin x} \quad ; \quad 0 < x < \dfrac{\pi}{12}$

16) $\sin x - \sin 3x + \sin 5x = k\sin 3x \quad , \quad -\dfrac{\pi}{6} < x < \dfrac{\pi}{6}$

17) $(m + 1)\cos 2x - 8m\left(\cos^4 \dfrac{x}{2} + \sin^4 \dfrac{x}{2}\right) + 7(m - 1) = 0$

18) $\sin\left(\dfrac{\pi}{4} - \dfrac{3\pi}{2}\right) = m \sin\left(\dfrac{\pi}{4} + \dfrac{\pi}{2}\right)$

مثال۱۹) اگر $2\sin x + 2\cos x - \sin x \cos x = 2$ باشد $\cos\left(x - \dfrac{\pi}{4}\right)$ را بدست آورید .