

$$2\sqrt{3}\sin^2(x/2) + 2 = 2\sin^2(x) + \sqrt{3}$$

$$2\sqrt{3}(1-\cos(2x/2))/2 + 2 = 2\sin^2(x) + \sqrt{3}$$

$$\sqrt{3} - \sqrt{3}\cos x + 2 = 2(1-\cos^2(x)) + \sqrt{3}$$

$$\cos x = y$$

$$-y\sqrt{3} + 2 = 2 - 2y^2$$

$$2y^2 - y\sqrt{3} = 0$$

$$y(2y - \sqrt{3}) = 0$$

$$y = 0 \quad 2y - \sqrt{3} = 0$$

$$y = \sqrt{3}/2$$

$$\cos x = 0$$

$$x = \pi/2 + \pi k$$

$$\cos x = \sqrt{3}/2$$

$$x = \pm \pi/6 + 2\pi k$$

