

$$(2+3\cos 2x) \cdot (\sqrt{2\cos 2x + 3\sin x + 3} - 2\sin x + 1) = 0$$

$$(2+3(1-2\sin^2 x)) \cdot (\sqrt{2(1-2\sin^2 x) + 3\sin x + 3} - 2\sin x + 1) = 0$$

$$\sin x = a$$

$$(5-6a^2) \cdot (\sqrt{(2-4a^2) + 3a + 3} - 2a + 1) = 0$$

$$6a^2 = 5$$

$$a^2 = \frac{5}{6}$$

$$a = \pm \sqrt{\frac{5}{6}}$$

$$2-4a^2 + 3a + 3 \geq 0$$

$$-4a^2 + 3a + 5 \geq 0$$

$$-\frac{20}{6} + 3\sqrt{\frac{5}{6}} + 5 \geq 0$$

$$-\frac{20}{6} - 3\sqrt{\frac{5}{6}} + 5 \geq 0$$

$$\sqrt{2-4a^2 + 3a + 3} = 2a - 1$$

$$2a - 1 \geq 0 \quad 2a \geq 1 \quad a \geq \frac{1}{2}$$

$$-4a^2 + 3a + 5 = 4a^2 - 4a + 1$$

$$8a^2 - 7a - 4 = 0$$

$$D = 49 + 128 = 177$$

$$a_1 = \frac{7 + \sqrt{177}}{16}$$

$$a = \frac{7 + \sqrt{177}}{16}$$

$$\sin x = a$$

$$a = \sqrt{\frac{5}{6}}; \frac{7 + \sqrt{177}}{16}$$

$$\sin x = \frac{7 + \sqrt{177}}{16} \text{ -- нет решений}$$

$$\sin x = \sqrt{\frac{5}{6}}$$

$$x = \arcsin \sqrt{\frac{5}{6}} + 2\pi k; \pi - \arcsin \sqrt{\frac{5}{6}} + 2\pi k$$