

$$4\sin y - 6\sqrt{2}\cos x = 5 + 4\cos^2 y$$
$$\cos 2x = 0$$

$$2x = \pi/2 + \pi k$$
$$x = \pi/4 + \pi k/2$$
$$x_1 = +\pi/4 + 2\pi k$$
$$x_2 = +\pi/4 + 2\pi k$$

$$4\sin y - 6 = 5 + 4\cos^2 y$$
$$4\sin y - 4\cos^2 y = 11$$
$$4\sin y - 4 + 4\sin^2 y = 11$$
$$4\sin y + 4\sin^2 y - 15 = 0$$
$$\sin y = t$$
$$4t^2 + 4t - 15 = 0$$
$$D/4 = 4 + 60 = 64$$
$$t_1 = (-2 + 8)/4 = 6/4 = 3/2 \text{ не может}$$
$$t_2 = (-2 - 8)/4 = -10/4 \text{ не может}$$

$$4\sin y + 6 = 5 + 4\cos^2 y$$
$$4\sin y - 4\sin^2 y + 1 = 0$$
$$\sin y = t$$
$$4t^2 - 4t + 1 = 0$$
$$D/4 = 4 - 4 = 0$$
$$x_1 = 2/4 = 1/2$$
$$\sin y = 1/2$$
$$y = \pi/6 + 2\pi k$$
$$y = 5\pi/6 + 2\pi k$$
$$x = +\pi/4 + 2\pi n$$

Ответ:  $(-\pi/2 + 2\pi k; \pi/6 + 2\pi k); (+\pi/4 + 2\pi n; 5\pi/6 + 2\pi k)$

