

$$\sin x \cdot \operatorname{ctg} y = \sqrt{6}/2$$
$$\operatorname{tg} x \cdot \operatorname{cos} y = \sqrt{3}/2$$

$$\sin x / \operatorname{tg} y = \sqrt{6}/2$$
$$\operatorname{tg} y = 2 \sin x / \sqrt{6}$$
$$\operatorname{tg} x \cdot \operatorname{cos} y = \sqrt{3}/2$$
$$\operatorname{cos} y = \sqrt{3}/2 \operatorname{tg} x$$
$$\operatorname{tg}^2 y = 4 \sin^2 x / 6$$
$$\operatorname{cos}^2 y = 3/4 \operatorname{tg}^2 x$$
$$1 + 4 \sin^2 x / 6 = 4 \operatorname{tg}^2 x / 3$$
$$10 \sin^2 x / 6 + \operatorname{cos}^2 x = 4 \operatorname{tg}^2 x / 3$$
$$10 \sin^2 x / 6 + \operatorname{cos}^2 x = 4 \sin^2 x / 3 \operatorname{cos}^2 x$$
$$3 \operatorname{cos}^2 x \neq 0$$
$$\operatorname{cos} x = 0$$
$$10 \sin^2 x \cdot \operatorname{cos}^2 x + 6 \operatorname{cos}^4 x = 8 \sin^2 x$$
$$(10 - 10 \operatorname{cos}^2 x) \cdot \operatorname{cos}^2 x + 6 \operatorname{cos}^4 x = 8 - 8 \operatorname{cos}^2 x$$
$$a = \operatorname{cos}^2 x$$
$$(10 - 10a)a + 6a^2 = 8 - 8a$$
$$10a - 10a^2 + 6a^2 = 8 - 8a$$
$$18a - 4a^2 - 8 = 0$$
$$4a^2 - 18a + 8 = 0$$
$$2a^2 - 9a + 4 = 0$$
$$D = 81 - 32 = 49$$
$$a_1 = (9+7)/4 = 4$$
$$a_2 = (9-7)/4 = 1/2$$

$$\operatorname{cos}^2 x = 4$$
$$\operatorname{cos} x = 2 - \text{не подходит}$$
$$\operatorname{cos}^2 x = 1/2$$
$$\operatorname{cos} x = \pm 1/\sqrt{2} = \pm \sqrt{2}/2$$
$$x_1 = \pi/4 + pk$$
$$x_2 = 3\pi/4 + pk$$
$$\operatorname{cos} y = \sqrt{3}/2$$
$$y = \pm \pi/6 + 2pk$$
$$\operatorname{cos} y = -\sqrt{3}/2$$
$$y = \pm 5\pi/6 + 2pk$$

Ответ:  $(\pi/4 + pk; \pm \pi/6 + 2pn)$   
 $(3\pi/4 + pk; \pm 5\pi/6 + 2pn)$

