

$$nx = \pi k, k \in \mathbb{Z}, x = \frac{\pi k}{a}, k \in \mathbb{Z}$$

При условии $0,01 < a < 0,02$ и $100 < x < 500$

$$\downarrow$$

$$x \leq 100\pi k$$

$$x = 50\pi k$$

$$k = \frac{x}{100\pi} \Rightarrow k = 0,31$$

$$k = \frac{x}{50\pi} \quad k = 3,18$$

$$0,31 < k < 3,18. \text{ т.к. } k \in \mathbb{Z}, \text{ то } k = [1, 2, 3]$$

Ответ: $x = \frac{\pi k}{a}; k = 1, k = 2, k = 3$

$$x = \frac{\pi}{a} \text{ или } x = \frac{2\pi}{a} \text{ или } x = \frac{3\pi}{a}$$

17.6.2.

$$4y - 3x + 12 = 0$$

$$7y + x - 14 = 0$$

Напишем нормальные вектора прямых

$$\vec{n}_1 = (-3, 4)$$

$$\vec{n}_2 = (1, 7)$$

$$\cos \alpha = |\cos(\vec{n}_1, \vec{n}_2)| = \frac{|-3 \cdot 1 + 4 \cdot 7|}{\sqrt{(-3)^2 + 4^2} \cdot \sqrt{1^2 + 7^2}} = \frac{25}{5 \cdot 5\sqrt{2}} = \frac{1}{\sqrt{2}} \Rightarrow$$

$$\alpha = \arccos \frac{1}{\sqrt{2}} = 45^\circ = \frac{\pi}{4}$$

17.6.4

$$x = \sqrt{2}$$

$$x = -\sqrt{3} \quad - \text{прямые перпендикулярные, } \Rightarrow$$

$$\alpha = 180^\circ = \pi$$