

$$6 \operatorname{tg} 4x = \sqrt{12}$$

$$\operatorname{tg} 4x = \frac{\sqrt{4 * 3}}{6}$$

$$\operatorname{tg} 4x = \frac{2 * \sqrt{3}}{6}$$

$$\operatorname{tg} 4x = \frac{\sqrt{3}}{3}$$

$$4x = \operatorname{arctg} \frac{\sqrt{3}}{3} + \pi n$$

$$4x = \frac{\pi}{6} + \pi n$$

$$x = \frac{\pi}{24} + \frac{\pi}{4} n$$

$$x = \frac{\pi}{4} \left(\frac{\pi}{6} + n \right)$$

$$\text{Ответ: } \frac{\pi}{4} \left(\frac{\pi}{6} + n \right), n \in Z$$