

$$\operatorname{tg} 14x + 3\operatorname{ctg} 14x + \sin 6x - 2\sqrt{2}\sin(3x+P/4) = 4/(\sqrt{3}+1)$$

$$(a+b)/2 \geq \sqrt{ab}$$

$$(a+b)^2/4 \geq ab$$

$$(a^2+2ab+b^2)/4 - ab \geq 0$$

$$(a^2+2ab+b^2-4ab)/4 \geq 0$$

$$(a^2+b^2-2ab)/4 \geq 0$$

$$(a-b)^2/4 \geq 0$$

$$(\operatorname{tg} 14x + 3\operatorname{ctg} 14x)/2 \geq \sqrt{\operatorname{tg} 14x \cdot 3\operatorname{ctg} 14x}$$

$$(\operatorname{tg} 14x + 3\operatorname{ctg} 14x)/2 \geq \sqrt{3}$$

$$\operatorname{tg} 14x + 3\operatorname{ctg} 14x \geq 2\sqrt{3}$$

$$4/(\sqrt{3}+1) = 4(\sqrt{3}-1)/2 = 2(\sqrt{3}-1) = 2\sqrt{3}-2$$

7P/3

[0; 2P]

Ответ: P/6+2Pk;  
2P/3+2Pk;  
4P/3+2Pk

$$\sin 6x - 2\sqrt{2}\sin(3x+P/4) = \sin 6x - 2\sqrt{2}\sin 3x \cos P/4 + \sin P/4 \cos 3x = \sin 6x - 2\sqrt{2}\sin 3x \cdot \sqrt{2}/2 + \sqrt{2}\cos 3x/2 =$$

$$= \sin 6x - 2\sin 3x + \sqrt{2}\cos 3x/2$$

$$\sin 6x - 2\sqrt{2}\sin(3x+P/4) = -\cos(6x+P/2) - 2\sqrt{2}\sin(3x+P/4) = -(1-2\sin^2(3x+P/4)) - 2\sqrt{2}\sin(3x+P/4) = -(1-2\sin^2(3x+P/4)) - 2\sqrt{2}\sin(3x+P/4) =$$

$$= -1 + 2\sin^2(3x+P/4) - 2\sqrt{2}\sin(3x+P/4) = -1 + [\sqrt{2}\sin(3x+P/4)]^2 - 2[\sqrt{2}\sin(3x+P/4)] = -1 + [\sqrt{2}\sin(3x+P/4)]^2 - 2[\sqrt{2}\sin(3x+P/4)] + 1 - 1 =$$

$$= ([\sqrt{2}\sin(3x+P/4)] - 1)^2 - 2$$

$$a^2 - 2a$$

$$\cos(6x+P/2) = \cos 6x \cos P/2 - \sin 6x \sin P/2 = -\sin 6x$$

$$\cos 2x = 1 - 2\sin^2(x)$$

$$\operatorname{tg} 14x + 3\operatorname{ctg} 14x + ([\sqrt{2}\sin(3x+P/4)] - 1)^2 - 2 = 2\sqrt{3} - 2$$

$$\geq 2\sqrt{3} \quad \geq 0$$

$$\operatorname{tg} 14x + 3\operatorname{ctg} 14x + ([\sqrt{2}\sin(3x+P/4)] - 1)^2 = 2\sqrt{3}$$

$$\geq 2\sqrt{3} \quad \geq 0$$

$$([\sqrt{2}\sin(3x+P/4)] - 1)^2 = 0$$

$$[\sqrt{2}\sin(3x+P/4)] - 1 = 0$$

$$\sqrt{2}\sin(3x+P/4) = 1$$

$$\sin(3x+P/4) = \sqrt{2}/2$$

$$3x+P/4 = P/4 + 2Pk$$

$$3x = 2Pk$$

$$x = 2Pk/3$$

$$3x+P/4 = 3P/4 + 2Pk$$

$$3x = P/2 + 2Pk$$

$$x = P/6 + 2Pk/3$$

$$\operatorname{tg} 14(P/6) + 3\operatorname{ctg} 14(P/6) = \operatorname{tg} 7(P/3) + 3\operatorname{ctg} 7(P/3) =$$

$$= \operatorname{tg}(P/3) + 3\operatorname{ctg}(P/3) = \sqrt{3} + 3/\sqrt{3} = \sqrt{3} + \sqrt{3} = 2\sqrt{3}$$

$$\operatorname{tg} 14(2P/3) + 3\operatorname{ctg} 14(2P/3) = \operatorname{tg}(4P/3) + 3\operatorname{ctg}(4P/3) =$$

$$= \sqrt{3} + \sqrt{3} = 2\sqrt{3}$$

$$\operatorname{tg} 14(5P/6) + 3\operatorname{ctg} 14(5P/6) = \operatorname{tg} 7(5P/3) + 3\operatorname{ctg} 7(5P/3) =$$

$$\operatorname{tg}(2P/3) + 3\operatorname{ctg}(2P/3) = -\sqrt{3} - 3/\sqrt{3} = -2\sqrt{3}$$

$$\operatorname{tg} 14(4P/3) + 3\operatorname{ctg} 14(4P/3) = \operatorname{tg}(4P/3) + 3\operatorname{ctg}(4P/3) = 2\sqrt{3}$$

$$\operatorname{tg} 14(3P/2) + 3\operatorname{ctg} 14(3P/2) = \operatorname{tg} 21P + 3\operatorname{ctg} 21P = 0 + \infty = \dots$$

$$\operatorname{tg} 14(0) + 3\operatorname{ctg} 14(0) = \operatorname{tg} 0 + 3\operatorname{ctg} 0 = 0 + \infty = \dots$$

5P/6

