

$$5(\sin x + \cos x) + \sin 3x - \cos 3x = 2\sqrt{2}(2 + \sin 2x)$$

$$3\sin x - 4\sin^3 x - 4\cos^3 x + 3\cos x + 5(\sin x + \cos x) = 2\sqrt{2}(2 + \sin 2x)$$

$$3(\sin x + \cos x) + 5(\sin x + \cos x) - 4\sin^3 x - 4\cos^3 x = 2\sqrt{2}(2 + \sin 2x)$$

$$8(\sin x + \cos x) - 4(\sin^3 x + \cos^3 x) = 2\sqrt{2}(2 + \sin 2x)$$

$$8(\sin x + \cos x) - 4(\sin x + \cos x)(\sin^2 x - \sin x \cos x + \cos^2 x) = 2\sqrt{2}(2 + \sin 2x)$$

$$8(\sin x + \cos x) - 4(\sin x + \cos x)(1 - \sin x \cos x) = 2\sqrt{2}(2 + 2 \sin x \cos x)$$

$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

$$\sin x + \cos x = t$$

$$\sin^2 x + 2 \cos x \sin x + \cos^2 x = t^2$$

$$1 + 2 \cos x \sin x = t^2$$

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

$$8t - 4t(1 - (t^2 - 1)/2) = 2\sqrt{2}(2 + 2(t^2 - 1)/2)$$

$$8t - 4t + 4t((t^2 - 1)/2) = 4\sqrt{2} + 2\sqrt{2}((t^2 - 1))$$

$$4t + 4t^3/2 - 2t = 4\sqrt{2} + 2\sqrt{2}t^2 - 2\sqrt{2}$$

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

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

$$t^3 - \sqrt{2}t^2 + t - \sqrt{2} = 0$$

$$ax^2 + bx + c = 0$$

$$t^3 - \sqrt{2}t^2 + t - \sqrt{2} = 0$$

$$(t - \sqrt{2})t^2 + 1 = 0$$

$$t^2 = -1$$

$$t = 2i$$

Комплексные корни

$$\sin x + \cos x = \sqrt{2}$$

$$\sqrt{2}(1 + 1)(1/\sqrt{2} \sin x + 1/\sqrt{2} \cos x) = \sqrt{2}(\sin x \cos p/4 + \cos x \sin p/4) =$$

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

$$1/\sqrt{2} = \sqrt{2}/2 = \sin p/4 = \cos p/4$$

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

$$\sin(x + p/4) = 1$$

$$x = p/4 + pk$$

Ответ : $p/4 + pk$

$\sqrt{2}$

	1	$-\sqrt{2}$	1	$-\sqrt{2}$
$\sqrt{2}$	1	0	1	0