

$$\sin x - \sin y = 2 \sin\left(\frac{x-y}{2}\right) \cos\left(\frac{x+y}{2}\right)$$

$$\cos\left(\frac{P}{2}\right) \operatorname{tg} x = \sin\left(\frac{P}{2}\right) \operatorname{ctg} x$$

$$\sin\left(\frac{P}{2} - \frac{P}{2}\right) \operatorname{tg} x - \sin\left(\frac{P}{2}\right) \operatorname{ctg} x = 0$$

$$2 \sin\left(\frac{P}{2} - \frac{P}{2}\right) \operatorname{tg} x - \sin\left(\frac{P}{2}\right) \operatorname{ctg} x = 0$$

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$$\left(\frac{P}{2} - \frac{P}{2}\right) \operatorname{tg} x - \sin\left(\frac{P}{2}\right) \operatorname{ctg} x = Pk$$

$$P(1 - \operatorname{tg} x - \operatorname{ctg} x) = 4Pk$$

$$1 - \operatorname{tg} x - \operatorname{ctg} x = 4k$$

$$\operatorname{tg} x + \operatorname{ctg} x = 1 - 4k$$

$$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} = 1 - 4k$$

$$\frac{\sin^2(x) + \cos^2(x)}{\sin x \cos x} = 1 - 4k$$

$$\frac{1}{\sin x \cos x} = 1 - 4k$$

$$\sin x \cos x = \frac{1}{1 - 4k}$$

$$\frac{\sin 2x}{2} = \frac{1}{1 - 4k}$$

$$\sin 2x = \frac{2}{1 - 4k}$$

$$k \geq 1 \quad k \leq -1 \quad || \quad k \neq 0$$

$$2x = \arcsin\left(\frac{2}{1 - 4k}\right) + 2Pn$$

$$x = \arcsin\left(\frac{2}{1 - 4k}\right) / 2 + Pn$$

$$2x = P - \arcsin\left(\frac{2}{1 - 4k}\right) + 2Pn$$

$$x = P/2 - \arcsin\left(\frac{2}{1 - 4k}\right) / 2 + Pn$$

$$\cos\left(\frac{P}{2} - \frac{P}{2}\right) \operatorname{tg} x + \sin\left(\frac{P}{2}\right) \operatorname{ctg} x = 0$$

$$\left(\frac{P}{2} - \frac{P}{2}\right) \operatorname{tg} x + \sin\left(\frac{P}{2}\right) \operatorname{ctg} x = P/2 + Pk$$

$$P(1 - \operatorname{tg} x + \operatorname{ctg} x) = 4(P/2 + Pk)$$

$$P(\operatorname{ctg} x - \operatorname{tg} x - 1) = 4Pk$$

$$\operatorname{ctg} x - \operatorname{tg} x - 1 = 4k$$

$$\operatorname{ctg} x - \operatorname{tg} x = 4k + 1$$

$$\frac{\cos x}{\sin x} - \frac{\sin x}{\cos x} = 4k + 1$$

$$\frac{\cos^2 x - \sin^2 x}{\sin x \cos x} = 4k + 1$$

$$\frac{2 \cos^2 x - 1}{\sin x \cos x} = 4k + 1$$

$$\frac{\cos 2x}{\sin x \cos x} = 4k + 1$$

$$\frac{2 \cos 2x}{\sin 2x} = 4k + 1$$

$$\frac{\cos 2x}{\sin 2x} = \frac{4k + 1}{2}$$

$$\operatorname{ctg} 2x = \frac{4k + 1}{2}$$

$$2x = \operatorname{arcctg}\left(\frac{4k + 1}{2}\right) + Pn$$

$$x = \operatorname{arcctg}\left(\frac{4k + 1}{2}\right) + Pn/2$$

Ответ: $\arcsin\left(\frac{2}{1 - 4k}\right) / 2 + Pn$

$P/2 - \arcsin\left(\frac{2}{1 - 4k}\right) / 2 + Pn$

$\operatorname{arcctg}\left(\frac{4k + 1}{2}\right) + Pn/2$