

Основні тригонометричні формули.

Формули додавання

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta,$$

$$\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta,$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta,$$

$$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta,$$

$$\operatorname{tg}(\alpha + \beta) = \frac{\operatorname{tg} \alpha + \operatorname{tg} \beta}{1 - \operatorname{tg} \alpha \cdot \operatorname{tg} \beta},$$

$$\text{де } \alpha, \beta, \alpha + \beta \neq \frac{\pi}{2} + \pi n, n \in \mathbb{Z}.$$

$$\operatorname{tg}(\alpha - \beta) = \frac{\operatorname{tg} \alpha - \operatorname{tg} \beta}{1 + \operatorname{tg} \alpha \cdot \operatorname{tg} \beta},$$

$$\text{де } \alpha, \beta, \alpha - \beta \neq \frac{\pi}{2} + \pi n, n \in \mathbb{Z}.$$

$$\operatorname{ctg}(\alpha + \beta) = \frac{\operatorname{ctg} \alpha \cdot \operatorname{ctg} \beta - 1}{\operatorname{ctg} \alpha + \operatorname{ctg} \beta},$$

$$\text{де } \alpha, \beta, \alpha + \beta \neq \pi n, n \in \mathbb{Z}.$$

$$\operatorname{ctg}(\alpha - \beta) = \frac{\operatorname{ctg} \alpha \cdot \operatorname{ctg} \beta + 1}{\operatorname{ctg} \alpha - \operatorname{ctg} \beta},$$

$$\text{де } \alpha, \beta, \alpha - \beta \neq \pi n, n \in \mathbb{Z}.$$