

ЭТО ТЕСТОВЫЙ ФАЙЛ

ДЛЯ ПРОВЕРКИ РАБОТЫ БОТА

ПРИМЕР ИСХОДНОГО ФАЙЛА

Докажите тождество (1.512—1.527):

$$1.512. \text{ а) } \frac{\sin \alpha + \cos (270^\circ + \alpha)}{2 \sin \frac{\alpha}{2} \cos \frac{\alpha}{2}} = 2; \text{ б) } \frac{2(\cos^2 2\alpha - \sin^2 2\alpha)}{\cos 4\alpha - \sin (270^\circ - 4\alpha)} = 1.$$

$$1.513. \text{ а) } \sin \left(\frac{\pi}{6} + \alpha \right) + \sin \left(\frac{\pi}{6} - \alpha \right) = \cos \alpha;$$

$$\text{ б) } \cos \left(\frac{\pi}{6} + \alpha \right) - \cos \left(\frac{\pi}{6} - \alpha \right) = -\sin \alpha.$$

$$1.514. \text{ а) } 2\sin^2 \alpha + \cos 2\alpha = 1; \text{ б) } 1 + \cos 2\alpha = 2\cos^2 \alpha.$$

$$1.515. \text{ а) } (1 + \operatorname{tg} x)^2 - 2\operatorname{tg} x = \frac{1}{\cos^2 x};$$

$$\text{ б) } (1 + \operatorname{ctg} x)^2 - \frac{1}{\sin^2 x} = 2 \operatorname{ctg} x.$$

$$1.516. \text{ а) } (\operatorname{tg} \alpha + \operatorname{ctg} \alpha) \cdot \sin 2\alpha = 2;$$

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$$1.517. \text{ а) } \frac{\operatorname{tg} \alpha + 1}{\sin \alpha + \cos \alpha} = \frac{1}{\cos \alpha}; \text{ б) } \frac{\operatorname{ctg} \alpha - 1}{\cos \alpha - \sin \alpha} = \frac{1}{\sin \alpha}.$$

$$1.518. \text{ а) } \frac{\cos^4 \alpha + \sin^2 \alpha \cos^2 \alpha}{\sin^2 \alpha} = \operatorname{ctg}^2 \alpha; \text{ б) } \frac{\sin^4 \alpha + \sin^2 \alpha \cos^2 \alpha}{\cos^2 \alpha} = \operatorname{tg}^2 \alpha.$$

$$1.519. \text{ а) } 1 - \frac{\sin 2\alpha \sin \alpha}{2 \cos \alpha} = \cos^2 \alpha; \text{ б) } 1 - \frac{\sin 2\alpha \cos \alpha}{2 \sin \alpha} = \sin^2 \alpha.$$

$$1.520. \text{ а) } \frac{\cos \left(\frac{3\pi}{2} - \alpha \right) + \sin 2\alpha}{\sin \left(\frac{\pi}{2} - \alpha \right) - 0,5} = 2\sin \alpha;$$

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$$1.521. \text{ а) } \frac{1 + \operatorname{tg} \beta}{1 + \operatorname{ctg} \beta} = \operatorname{tg} \beta; \text{ б) } \frac{1 - \operatorname{ctg} \alpha}{1 - \operatorname{tg} \alpha} = -\operatorname{ctg} \alpha.$$

$$1.522. \text{ а) } \frac{\sin 3\alpha + \sin \alpha}{\cos 3\alpha + \cos \alpha} = \operatorname{tg} 2\alpha; \text{ б) } \frac{\cos 4\alpha + \cos 6\alpha}{\sin 6\alpha - \sin 4\alpha} = \operatorname{ctg} \alpha.$$

$$1.523. \text{ а) } \frac{\sin (\alpha - \beta) + 2 \cos \alpha \sin \beta}{2 \cos \alpha \cos \beta - \cos (\alpha - \beta)} = \operatorname{tg} (\alpha + \beta);$$

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$$1.526. \text{ а) } \operatorname{tg} 2\alpha \cdot \frac{1 - \operatorname{tg}^2 \alpha}{1 + \operatorname{tg}^2 \alpha} = \sin 2\alpha; \text{ б) } \operatorname{ctg} 2\alpha \cdot \frac{2\operatorname{tg} \alpha}{1 + \operatorname{tg}^2 \alpha} = \cos 2\alpha.$$

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