ЭТО ТЕСТОВЫЙ ФАЙЛ

ДЛЯ ПРОВЕРКИ РАБОТЫ БОТА

ПРИМЕР ИСХОДНОГО ФАЙЛА

Докажите тождество (1.512—1.527):

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

б) $\frac{\sin(\alpha+\beta)-2\cos\alpha\sin\beta}{2\cos\alpha\cos\beta-\cos(\alpha+\beta)}=\operatorname{tg}(\alpha-\beta)$.

1.524. а) $\sin(\alpha+\beta)+\sin(\alpha-\beta)=2\sin\alpha\cos\beta$;
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1.525. а) $\frac{1-\cos\alpha}{\sin\alpha}=\operatorname{ctg}\left(\frac{\pi}{2}-\frac{\alpha}{2}\right)$; б) $\frac{\sin\alpha}{1+\cos\alpha}=\operatorname{tg}\left(\frac{\alpha}{2}+\pi\right)$.

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

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