

4.26  
k8

$n=k+1$

$$2^{k+2} \cos \frac{\alpha}{2} \cdot \cos \frac{\alpha}{2} \cdots \cos \frac{\alpha}{2^k} \cdot \cos \frac{\alpha}{2^{k+1}} \stackrel{?}{=} \frac{\sin 2\alpha}{\sin \frac{\alpha}{2^{k+1}}}$$

$$\frac{2 \sin 2\alpha}{\sin \frac{\alpha}{2^k}} \cdot \cos \frac{\alpha}{2^{k+1}} \stackrel{?}{=} \frac{\sin 2\alpha}{\sin \frac{\alpha}{2^{k+1}}} \cdot \sin \frac{\alpha}{2^{k+1}}$$

$$\frac{2 \sin \frac{\alpha}{2^{k+1}} \cos \frac{\alpha}{2^{k+1}}}{\sin \frac{\alpha}{2^k}} = \frac{2 \cdot \frac{1}{2} \cdot \sin \frac{\alpha}{2^k}}{\sin \frac{\alpha}{2^k}} = 1$$