

2.52
ind

$n=1$

$$G_1 \alpha \cdot G_1 2\alpha = \frac{\ln(4\alpha)}{4 \ln \alpha} = \frac{2 \ln 2 \ln 2\alpha}{4 \ln \alpha} = \frac{4 \ln 2 \ln 2\alpha}{4 \ln \alpha} \quad \checkmark$$

$n=k+1$

$$G_1 \alpha \cdots G_1(2^k \alpha) \cdot G_1(2^{k+1} \alpha) \stackrel{?}{=} \frac{\ln(2^{k+2} \alpha)}{2^{k+2} \ln \alpha}$$

$$\frac{\ln(2^{k+1} \alpha)}{2^{k+1} \ln \alpha} \cdot G_1(2^{k+1} \alpha) \stackrel{?}{=} \quad "$$

$$\frac{\ln(2^{k+2} \alpha)}{2^{k+2} \ln \alpha} = \frac{\ln(2^{k+2} \alpha)}{2^{k+2} \ln \alpha}$$