

2.5+

kl

$$n=2 \quad \frac{4^2}{3 \cdot 4!} < \frac{1}{2^2} \quad \checkmark$$

$$n=k+1 \quad \frac{4^{k+1}}{(k+2)(2k+2)!} \stackrel{?}{<} \frac{1}{(k+1)^2} = \frac{1}{(k!)^2 (k+1)^2}$$

$$\frac{4^{k+1}}{(k+2)(2k+2)! (2k+1)(2k+2)} \stackrel{?}{<} \frac{4^k}{(k+1)(2k)!} \cdot \frac{1}{(k+1)^2}$$

ביטויים זהים

$$\frac{4}{(k+2)(2k+1)(k+1)} \stackrel{?}{<} \frac{1}{(k+1)(k+1)^2}$$

$$\frac{2}{(k+2)(2k+1)} \stackrel{?}{<} \frac{1}{(k+1)^2} \rightarrow 2k^2 + 4k + 2 < 2k^2 + 5k + 2 \quad \checkmark$$