

3.85

P2

$$1 + \frac{1}{2^3} + \frac{1}{3^3} \dots + \frac{1}{n^3} + \frac{1}{(n+1)^3} \stackrel{?}{\leq} \frac{5}{4} - \frac{1}{4(n+1)}$$

$$\frac{5}{4} - \frac{1}{4n} + \frac{1}{(n+1)^3} \stackrel{?}{\leq} \frac{5}{4} - \frac{1}{4(n+1)}$$

$$\frac{1}{(n+1)^3} \stackrel{?}{\leq} \frac{1}{4n} - \frac{1}{4(n+1)}$$

$$\frac{1}{(n+1)^3} \stackrel{?}{\leq} \frac{n+1-n}{4n(n+1)}$$

$$\frac{1}{(n+1)^2} \leq \frac{1}{4n}$$

$$4n \leq (n+1)^2$$

$$4n \leq n^2 + 2n + 1$$

$$n^2 - 2n + 1 \geq 0$$

$$(n-1)^2 \geq 0$$

↗
gilt für $n \geq 1$