

4.21  
102

$n = k+1$

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

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

$$\frac{1}{(k+1)^3} \leq \frac{k^2 - (k+1)(k+1)}{4k(k+1)}$$

$$\frac{1}{(k+1)^3} \leq \frac{1}{4k(k+1)}$$

$$4k(k+1) \leq (k+1)^3 \quad /: (k+1) > 0$$

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

$$0 \leq k^2 + 2k + 1 - 4k = (k-1)^2$$

.k sf nj