

$$\frac{2.60}{n!}$$

$$n=1$$

$$1 + \frac{5}{2} = \frac{8+1 \cdot 2-3}{2}$$

$$n=k+1,$$

$$1 + \frac{5}{2} + \dots + \frac{2^{k+3}}{2^k} + \frac{2^{k+1}+3}{2^{k+1}} \stackrel{?}{=} \frac{2^{k+3} + (k+1)2^{k+1} - 3}{2^{k+1}}$$

$$\frac{2^{k+2} + k \cdot 2^k - 3}{2^k} + \frac{2^{k+1} + 3}{2^{k+1}}$$

$$\frac{2^{k+2} + 2k \cdot 2^k - 3 + 2^{k+1} + 3}{2^{k+1}} =$$

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

סעיף 11

לשם גניקול של גניקול תיקוס

$$\frac{A}{n} + \frac{B}{n^2} + \frac{C}{n+1} + \frac{D}{(n+1)^2} = \frac{2n+1}{n^2(n+1)^2}$$

$$An(n+1)^2 + B(n+1)^2 + C(n+1)n^2 + Dn^2 = 2n+1$$

$$n=0$$

$$\boxed{B=1}$$

$$n=-1$$

$$\boxed{D=-1}$$

$$n=1$$

$$4A+4+2C-1=3$$

$$\boxed{2A=-C}$$

$$n=2$$

$$18A+9+12C-4=5$$

$$\boxed{1.5A=-C}$$

$$\left. \begin{array}{l} 2A=-C \\ 1.5A=-C \end{array} \right\} A=C=0$$

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

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

$$1 - \frac{1}{(n+1)^2} \leq 1 - \frac{1}{(n+1)^2} \quad \checkmark$$