Inductive Step continued

$$= \underbrace{\sum_{i=1}^{k} \frac{1}{k(k+)}}+ \frac{1}{(k+1)(k+2)}$$

$$= \frac{k}{(k+1)} + \frac{1}{(k+1)(k+2)}$$

$$= \frac{k(k+2)+1}{(k+1)(k+2)}$$

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

$$= \frac{k(k+1)+1(k+1)}{(k+1)(k+2)} = \frac{\cancel{(k+1)}(k+1)}{\cancel{(k+1)}(k+2)}$$

$$= \frac{k+1}{k+2} = R.H.S$$

Therefore, proved, It is true for all $n \in Z^+$