Inductive Step Continued

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

$$= (k+1)^2\left[\frac{k^2+4(k+1)}{4}\right]$$

$$= (k+1)^2\left[\frac{k^2+4k+4}{4}\right]$$

$$= (k+1)^2\left[\frac{k^2+2k+2k+4}{4}\right]$$

$$= (k+1)^2\left[\frac{k(k+2)+2(k+2)}{4}\right]$$

$$= (k+1)^2\left[\frac{(k+2)(k+2)}{4}\right] \cdot (k+1)^2\left(\frac{k+2}{2}\right)^2$$

$$= \left[\frac{(k+1)(k+2)}{2}\right]^2 = R.H.S \quad \text{Hence } \square$$