

$$\frac{1}{2} \quad h=1$$

$$1 = \frac{1}{2} = \frac{1}{2} \quad \checkmark$$

$$n=k$$

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

$$n=k+1$$

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

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

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