

$$\left(1 - \frac{1}{n}\right) + \left(1 - \frac{2}{n}\right) + \left(1 - \frac{3}{n}\right) + \dots + n \text{ terms}$$

$$T_r = 1 - \frac{r}{n}$$

S_n for n terms :-

$$S_n = \sum_{r=1}^n \left(1 - \frac{r}{n}\right)$$

$$S_n = \sum_{r=1}^n 1 - \sum_{r=1}^n \frac{r}{n}$$

$$S_n = \sum_{r=1}^n 1 - \frac{1}{n} \sum_{r=1}^n r$$

$$S_n = n - \frac{1}{n} \left(\frac{n(n+1)}{2} \right)$$

$$S_n = n - \frac{n+1}{2}$$

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

$$S_n = \frac{n-1}{2}$$

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