

**EX:** 2 6 18 54

$$a_1 = 2$$

$$a_2 = 2 \cdot 3$$

$$a_3 = 2 \cdot 3^2$$

$$a_4 = 2 \cdot 3^3$$

$$a_n = a_1 \cdot r^{n-1} \quad (1)$$

2 6 18 54

a ar ar ar

suppose

sn = sum

r = ratio

$$S_n = a + ar + ar^2 + \dots + ar^{n-1}$$

$$-rS_n = -ar - ar^2 - ar^3 - \dots - ar^n$$

$$S_n - rS_n = a - ar^n \quad S_n(1-r) = a(1-r^n)$$

$$S_n = \frac{a(1-r^n)}{(1-r)} \quad (2)$$