

☐ a. Buktikan bahwa pernyataan di bawah ini benar
 utk n bilangan asli.

$$2 + 5 + 8 + \dots + (3n-1) = \sum_{k=1}^n (3k-1) = \frac{n(3n+1)}{2}$$

☐ 1. $n=1$

$$3n-1 = \frac{n(3n+1)}{2}$$

$$3(1)-1 = \frac{1(3 \cdot 1 + 1)}{2}$$

$$3-1 = \frac{1(3+1)}{2}$$

$$2 = 2 \quad (\text{Benar})$$

☐ 2. Asumsikan benar utk $n=k$.

$$2 + 5 + 8 + \dots + (3k-1) = \frac{k(3k+1)}{2}$$

☐ 3. Tunjukkan benar utk $n=k+1$.

$$2 + 5 + 8 + \dots + (3k-1) + (3(k+1)-1) = \frac{(k+1)(3(k+1)+1)}{2}$$

nilainya sama dengan yg persamaan 2

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

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

$$\frac{1}{2} \left[(3k^2 + k) + 2(3k+2) \right] = \frac{1}{2} \left[(k+1)(3k+4) \right]$$

$$\frac{1}{2} \left[3k^2 + k + 6k + 4 \right] = \frac{1}{2} \left[3k^2 + 4k + 3k + 4 \right]$$

$$\frac{1}{2} \left[3k^2 + 7k + 4 \right] = \frac{1}{2} \left[3k^2 + 7k + 4 \right]$$

karena ruas kanan = ruas kiri
sehingga persamaan 3 benar / Terbukti.