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(295)

$$S_{2n} = 9S_n \quad \text{--- (1)}$$

$$\frac{2n}{2} [2a_1 + d(2n-1)] = \frac{9n}{2} [2a_1 + d(n-1)] \quad /: \frac{2n}{2}$$

$$2a_1 + 3dn - d = 9a_1 + 3dn - 3d$$

$$2d = 4a_1 \rightarrow \boxed{d = 2a_1}$$

$$S_{2n} = 4S_n$$

--- (2)

$$S_{2n} = \frac{2n}{2} [2a_1 + d(2n-1)] = n [2a_1 + 2a_1(2n-1)] = 2a_1 n [1+2n-1] = 4a_1 n^2$$

$$4S_n = \frac{4n}{2} [2a_1 + d(n-1)] = 2n [2a_1 + 2a_1(n-1)] = 4a_1 n [1+n-1] = 4a_1 n^2 \quad \text{--- (3)}$$