Geometric Series.

Saturday, August 10, 2019 11:03 AM

$$S_n = \frac{t_1(r^n - 1)}{r-1} \; ; \; r \neq 1$$

Proof:

$t_1, t_2, t_3, \ldots \quad t_n$

$S_n: \; t_1, \; t_1 \times r, \; t_1 \times r^2 \ldots \quad t_1 \times r^{n-1}$

Element line up:

S_n ; $t_1, \; t_1 \times r, \; t_1 \times r^2, \ldots, t_1 \times r^{n-2}, \; t_1 \times r^{n-1}$

vs

$r \cdot S_n$; $t_1 \cdot r, \; t_1 \times r^2, \; t_1 \times r^3, \ldots, t_1 \times r^{n-1}, \; t_1 \times r^n$

could null

what can we do w/this line up.

Each could null # other if subtraction happened except 1st & last which r unpaired.

$$r \cdot S_n - S_n = t_1 \times r^n - t_1 \quad \leftarrow \text{the rest nulled.}$$

!!

$$S_n(r-1) = t_1(r^n - 1)$$

$$S_n = \frac{t_1(r^n - 1)}{r-1} \quad \text{must: } r \neq 1$$

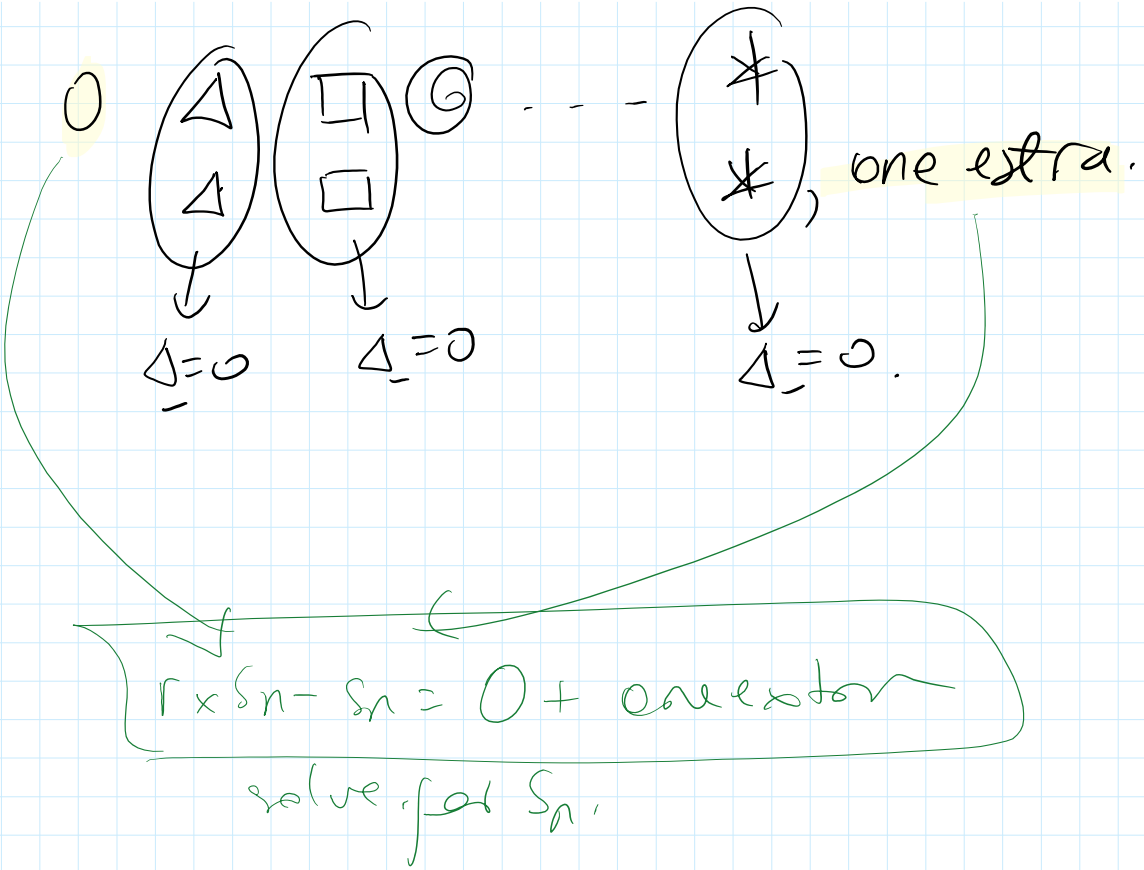
$\times r$

$S_n = ?$ $\quad 0 \; \Delta \; \square \; \bigcirc \; \ldots \; *$

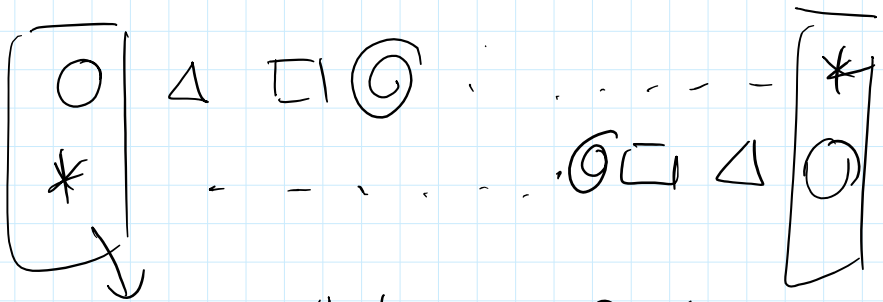
$S_n - S_n \rightarrow$ stupid $\equiv 0$.

$0 \times r = \Delta \rightarrow$ good to go.

r * S_n



Arith. Series



$S_n + S_n$ = calc easy

were all terms = 0 + *

like, $t_1 + t_n$.

Two papers

| 0 * Δ □ ◎ |

2nd paper match, & shift & turn.