

Chapter 9

Arithmetic

Geometric

$$a_n = a_{n-1} + d \quad \text{recursive}$$

$$a_n = a_{n-1} r$$

$$a_n = a_1 + d(n-1) \quad \text{explicit}$$

$$a_n = a_1 r^{n-1}$$

$$S_n = \frac{n}{2} (a_1 + a_n)$$

finite:

$$S_n = \frac{a_1 (1 - r^n)}{(1 - r)}$$

$$\sum_{n=1}^5 n^2 = 1^2 + 2^2 + 3^2 + 4^2 + 5^2$$

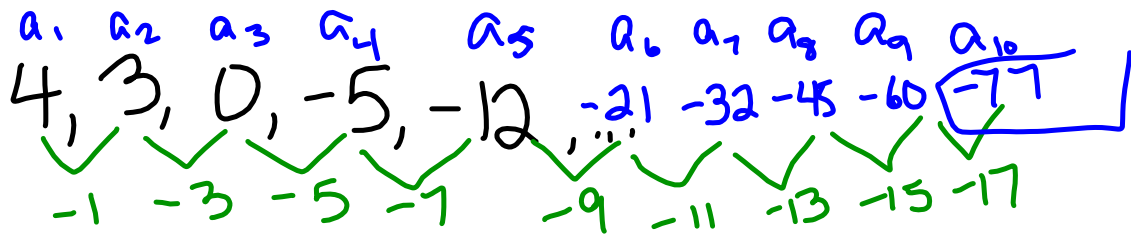
infinite:

$$|r| < 1 \quad S_n = \frac{a_1}{1 - r}$$

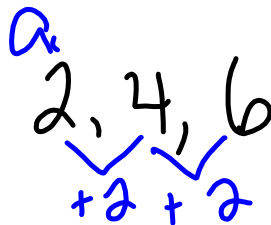
$$\sum_{n=1}^{\infty} a_1 r^{n-1}$$

infinite:

$$|r| > 1 \quad \text{no sum}$$



10. 60th



$6 - 4 = 2$

$4 - 2 = 2$

$d = 2$

$a_n = a_1 + d(n-1)$

$a_{60} = 2 + 2(60-1)$

$a_{60} = 2 + 2(59)$

$a_{60} = 2 + 118$

$a_{60} = 120$

