Properties of Series

① $\sum c \cdot a_n = c \sum a_n$ *c = constant

↓

example

$$\sum_{n=1}^{8} 7 \cdot n = 7 \cdot \sum_{n=1}^{8} n$$

$[7, 14, 21, 24, 35, 42, 49, 58]$ $\quad 7 \cdot [1, 2, 3, 4, 5, 6, 7, 8]$

↓

$[7, 14, 21, 24, 35, 42, 49, 58]$

② $\sum a_n + b_n = \sum a_n + \sum b_n$

↓

example

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

$[3, 6, 9, 12, 15]$ $\quad [1, 4, 9, 16, 25]$

↘ ADD ↙

$[4, 10, 18, 28, 40]$

Homework!

① Solve $\sum_{n=3}^{10} a_n + b_n$

$a_n = 2^n$

$b_n = 3n - 2$

② Solve $\sum_{n=1}^{10} a_n$

$a_n = (-1)^n$

③ Write the following in series notation $\left(\sum_{?}^{?} = ?\right)$

$$10 + 12 + 14 + 16 + 18 + 20$$

④ Write the following in series notation $\left(\sum_{?}^{?} = ?\right)$

$$\frac{5}{8} + \frac{5}{9} + \frac{5}{10} + \frac{5}{11} + \ldots + \frac{5}{34}$$