

# Cesàro Convergence

$$A = 1 - 1 + 1 - 1 + 1 - 1 + 1 - \dots$$

$$B = 1 - 2 + 3 - 4 + 5 - 6 + 7 - \dots$$

$$C = 1 + 2 + 3 + 4 + 5 + 6 + 7 + \dots$$

$$\begin{aligned} 2B &= (1 - 2 + 3 - 4 + 5 - 6 + 7 - \dots) \\ &\quad + (1 - 2 + 3 - 4 + 5 - 6 + \dots) \\ &\quad \hline &= (1 - 1 + 1 - 1 + 1 - 1 + 1 - \dots) = A \end{aligned}$$

$$\begin{aligned} C - B &= (1 + 2 + 3 + 4 + 5 + 6 + 7 + \dots) \\ &\quad - (1 - 2 + 3 - 4 + 5 - 6 + 7 - \dots) \\ &\quad \hline &= (0 + 4 + 0 + 8 + 0 + 12 + 0 + \dots) = 4C \end{aligned}$$