

## 8.14 Aside on the Geometric Series

Saturday, September 19, 2020 4:35 PM

Infinite sum of  $a^x$ ,  $0 < a < 1$

$$A = a^0 + a^1 + a^2 + \dots + a^T + a^{T+1}$$

$\downarrow$   
 $\underline{1}$

$$aA = a^1 + a^2 + \dots + a^{T+1}$$

$$A - aA = 1 - a^{T+1}$$

$$A(1-a) = 1 - a^{T+1}$$

$$A = (1 - a^{T+1}) / (1 - a)$$

$$\lim_{T \rightarrow \infty} A = 1 / (1 - a) \quad a^{T+1} \rightarrow 0$$