

# NCERT Discrete - 11.9.3.11

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## Question 11.9.3.11:

1) Evaluate

$$\sum_{k=1}^{11} (2 + 3^k)$$

## Solution:

The solution of the summation

$$\sum_{k=1}^{11} (2 + 3^k)$$

is

$$x(11) - x(0) = \left[ 2(12) + \frac{3^{12} - 1}{2} \right] - \left[ 2(1) + \frac{3^1 - 1}{2} \right]$$

Simplifying further:

$$\begin{aligned} x(11) - x(0) &= 24 + \frac{3^{12} - 1}{2} - [2(1) + 1] \\ &= 24 + \frac{3^{12} - 1}{2} - 3 \\ &= 21 + \frac{3^{12} - 1}{2} \end{aligned}$$