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Abstract

1 Equation That has been Coded into Maple

Given the value of $\lambda = 3, \mu = 7, \eta = 4, \xi = 2$, For Erlang-2 distribution of A(z),C(z), after following the maple code by using convert(A(z),FormalPowerSeries,z) expansion we the probability generating function for A(z), B(z), C(z) as below

$$A(z) = \sum_{k=0}^{\infty} [\frac{9}{100}\frac{7^k}{10^k} + \frac{9}{100}\frac{7^k}{10^k}k]z^k \tag{1}$$

$$C(z) = \sum_{k=0}^{\infty} (-\frac{400}{4761}\frac{4^k}{9^k} - \frac{8}{207}\frac{4^k}{9^k}k + \frac{3339}{26450}\frac{7^k}{10^k} + \frac{63}{1150}\frac{7^k}{10^k}k)z^k \tag{2}$$

we get the a_k and c_k

$$a_k = \frac{9}{100}\frac{7^k}{10^k} + \frac{9}{100}\frac{7^k}{10^k}k \tag{3}$$

$$c_k = -\frac{400}{4761}\frac{4^k}{9^k} - \frac{8}{207}\frac{4^k}{9^k}k + \frac{3339}{26450}\frac{7^k}{10^k} + \frac{63}{1150}\frac{7^k}{10^k}k \tag{4}$$

Question is
1. How to extract the coefficient of z^k from (1) and (2), so that I can avoid the copy-pasting in Maple.
From the derivations we know that, we have to compute the summation,

$$S = \sum_{k=0}^{\infty} \theta^k c_k + \sum_{k=1}^{\infty} \delta^{k-1} a_k \tag{5}$$

Next Question : How to compute the summation from 0 to ∞ in (5). I am able to compute the sum from 0 to 300.