P.O.C.A. WONG SIU CHING SECONDARY SCHOOL
PURE MATHEMATICS
ALGEBRA : FINITE SERIES
ASSIGNMENT 4

Date	Name	Grade / Score
		/15

1. (a) Show that $(k+1)k^2 - k(k-1)^2 = k(3k-1)$ for any positive integer k.

(b) Evaluate $\sum_{k=1}^{n} k(3k-1)$.

2. Using the method of difference to find an expression for $S_5 = \sum_{k=1}^{n} k^5$.

3. (a) Find a, b, c such that $\dfrac{1}{x(x+1)(x+2)} = \dfrac{a}{x} + \dfrac{b}{x+1} + \dfrac{c}{x+2}$ for all $x \in \mathbf{R}$.

(b) Evaluate $\displaystyle\sum_{k=1}^{n} \frac{1}{k(k+1)(k+2)}$.