SUVA SANGAM COLLEGE
YEAR 13
MATHEMATICS
WORKSHEET 10

Strand	Algebra
Sub-Strand	Sequences
Content Learning Outcome	Study Partial Sums, Convergence and Divergent of a Sequence.
Reference from Text	Pg 127 - 131

Questions

	CONCEPT IN BRIEF: **Partial Sum ((S_n)** - A series is a sum of terms of a sequence. - S_n is called the n^{th} partial sum of the series (or sum of the first *n* terms) - A sequence of partial sum is given as $\langle S_1, S_2, S_3, \ldots \rangle$ $a_1, a_2, a_3, \ldots . a_n$ (sequence) Partial sum $\langle a_1,\ a_1+a_2,\ a_1+a_2+a_3 \rangle$
1.	A sequence < a_n > is defined by $a_n = \dfrac{n+2}{n^2}$ (a) Find the first four terms of the sequence of partial sums. (b) Find the 6^{th} and 8^{th} term of the sequence.
	CONCEPT IN BRIEF: **Convergence and Divergence Sequence** **Sequences which approach a definite value are said to converge. If a sequence converges we call the value it approaches the limit.** **If a sequence has a limit, we say the sequence is convergent and that the sequence converges to the limit. Otherwise, the sequence is divergent.** **$\lim_{n\to\infty} a_n$=L (specific value)** **converges** **$\lim_{n\to\infty} a_n$= does not exist/$\infty/-\infty$** **diverge**
2.	**A sequence < a_n > is defined by $a_n = \dfrac{n+2}{4n+1}$** **a) Find the first four terms of the sequence.** **b) Determine whether a *sequence* converges or diverges, and if it converges, give the value to which it converges to.**
	CONCEPT IN BRIEF: **State steps to expand $(x+y)^n$ using the general formula of the Binomial Theorem.** $(x+y)^n$ ⟹ general formula ↘ 2nd term ↓ 1st Term $T_n = \binom{n}{r}(x)^{n-r}(y)^r$
3.	Expand $(3x-2)^5$ using Binomial Theorem.