FORMULAS FOR SEQUENCES AND SERIES

	DESCRIPTION OF FORMULA	FORMULA
	Recursive Formula Arithmetic Sequence	$a_n = a_{(n-1)} + d$ Where d is the common difference.
	Recursive Formula Geometric Sequence	$a_n = r \bullet a_{(n-1)}$ Where r is the common ratio.
	***n*th term of an Arithmetic Sequence**	$a_n = a_1 + (n-1)d$ Where n is any natural number.
	GENERAL Sum of an Arithmetic Series	$S_n = n\left[\dfrac{a_1 + a_n}{2}\right]$
	ALTERNATE Sum of an Arithmetic Series	$S_n = \dfrac{n}{2}\left[2a_1 + (n-1)d\right]$
	Sigma Notation Sum of an Arithmetic Series	$\sum_{k=1}^{n} f(k)$ Where $k=1$ is the first value of k, n is the last value k, and $f(k)$ is the formula for the terms of the series.
	***n*th term of a Geometric Sequence**	$a_n = a_1 \bullet r^{(n-1)}$ Where n is any natural number.
	Sum of a Geometric Series (Use when given a_1 and n.)	$S_n = \dfrac{a_1 - a_1 r^n}{1-r}$, and $r \neq 1$
	Sum of a Geometric Series (Use when given a_1 and a_n.)	$S_n = \dfrac{a_1 - a_n r}{1-r}$, and $r \neq 1$
	Sum of a Geometric Series (Use when given a_1 and a_n.)	$S_n = \dfrac{a_1(1-r^n)}{1-r}$, and $r \neq 1$
	Sigma Notation Sum of a Geometric Series	$\sum_{k=1}^{n} a_1 (b)^{(k-1)}$ Where k is the first value of k, n is the last value of k, a_1 is the first term, and b is the base.
	Sum of an Infinite Geometric Series	$S = \dfrac{a_1}{1-r}$, with $-1 < r < 1$ If $\lvert r \rvert \geq 1$, the series has no sum.
	Sigma Notation Sum of an Infinite Geometric Series	$\sum_{k=1}^{\infty} a_1 (b)^{(k-1)}$ Where k is the first value of k, the last value of k is infinite, a_1 is the first term, and b is the base.
	Binomial Theorem $(a+b)^n =$ ${}_nC_0\, a^n b^0 + {}_nC_1\, a^{(n-1)} b^1 + {}_nC_2\, a^{(n-2)} b^2 + {}_nC_3\, a^{(n-3)} b^3 + \ldots + {}_nC_n\, a^0 b^n = \sum_{k=0}^{n} \dfrac{n!}{k!(n-k)!} \bullet a^{n-k} b^k$	