PreCalculus KC 7 Review (Discrete Mathematics) Name:_____

Non-Calculator

1) Find the sum of the coefficients of $(4x - 5y)^3$.

2) Find the sum of the first 328 even natural numbers.

3) Find the 10th term of the geometric sequence if $a_3 = \frac{1}{3}$ and $a_7 = 27$.

4) Find the sum of the infinite geometric series: $10 + 4 + \frac{8}{5} + \frac{16}{25} + \cdots$

5) Find the n^{th} term of the geometric sequence if $a_4 = 1$ and $a_8 = 81$.

6) Find the summation: $\sum_{n=1}^{6} -3(\frac{1}{2})^{n-1}$

7) Find a_n for the arithmetic sequence with $a_2 = -5,\ d = 4,$ and $n = 47$.

8) Find the fifth term of $(5 - x)^7$.

9) If $f(x) = \frac{(x+2)!}{x!}$, find $f(4)$ by two different methods.

10) Find the summation: $\sum_{n=1}^{9,999} \log\frac{n}{n+1}$

Calculator

11) Find the partial sum of: $\sum_{x=1}^{79} \log_{\pi} x$

12) What is the 12th term of $(1.5x - 2.1y)^{14}$?

13) Find the formula for a_n and then find a_1 for the following arithmetic sequence:

$a_4 = -23$ and $a_8 = 95$

14) Find the following summation by two methods: $\sum_{24}^{95} 1.6\left(\frac{2}{3}\right)^x$

15) Find the formula for a_n and then find a_1 for the following geometric sequence:

$a_3 = \frac{25}{7}$ and $a_7 = \frac{15{,}625}{16{,}807}$

16) Find the coefficient of the x^3y^4 term in the expansion of $(2x - y)^7$.