MAT 112 — Group Work — Name: _____

13.1 – 13.3 — Seat #: _____ - _____

Write down the first 5 terms of each sequence.

1. $\{(n-1)^2\}$ _____

2. $\{(-1)^n(\frac{n+3}{n+1})\}$ _____

$$\sum_{k=1}^{n} k = 1+2+3+\ldots+n = \frac{n(n+1)}{2}$$

$$\sum_{k=1}^{n} k^2 = 1^2+2^2+3^2+\ldots+n^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\sum_{k=1}^{n} k^3 = 1^3+2^3+3^3+\ldots+n^3 = \left[\frac{n(n+1)}{2}\right]^2$$

Evaluate using formulas.

3. $\sum_{k=1}^{10}(k+3)$ = _____

4. $\sum_{k=1}^{8}(2k^2-1)$ = _____

Find a general formula for the sequence.

5. {3, -5, 7, -9, 11, -13,...} a_n = _____

Arithmetic Sequences	Geometric Sequences
$a_n = a_1 + d(n-1)$	$a_n = a_1 r^{n-1}$
$S_n = \frac{n}{2}(a_1 + a_n)$	$S_n = \frac{a_1(1-r^n)}{1-r}$
	$S_\infty = \frac{a_1}{1-r}, \lvert r \rvert < 1$

6. a. Write out the terms in the indicated sequence and then find the sum.

$\sum_{k=1}^{7} 4k-3$ = _____ *(4 pts.)*

b. Is this an arithmetic sequence or a geometric sequence? _____ *(2 pts.)*

c. Find the 35th term of the sequence. a_{35} = _____ *(4 pts.)*

d. Find the sum of the first 35 terms of the sequence. S_{35} = _____ *(4 pts.)*

7. Given the sequence $\frac{10}{1}, \frac{10}{3}, \frac{10}{9}, \frac{10}{27}, \ldots$

a. Is the sequence arithmetic or geometric? _____ *(2 pts.)*

b. Write a formula for the nth term of the sequence. a_n = _____ *(4 pts.)*

c. What is the 8th term? a_8 = _____ *(4 pts.)*

d. What is the sum of the first 8 terms? S_8 = _____ *(4 pts.)*

e. What is the sum of this infinite sequence? S_n = _____ *(4 pts.)*