Name: _____

An Introduction to Sequences and Series

Exercise 1: Given the sequence $\{a_n\}$ with

$a_n = 3 + \frac{n}{2}, n \in \mathrm{N}$

Is the sequence decreasing or increasing? Verify your answer.

Exercise 2: Write the next three terms of these sequences.

1) 1, 3, 5, 7 ...
2) -3, 3, -3, 3...
3) -10, -8, -6, -4...
4) $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}...$

Exercise 3: Find a_7 and a_8 and figure out a formula for a_n.

1) $1, \frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \frac{1}{6}, ...$
2) 1, 4, 9, 16, 25, 36, ...
3) $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}, \frac{1}{11}, \frac{1}{13}, ...$
4) $\frac{1}{2}, \frac{3}{4}, \frac{7}{8}, \frac{15}{16}, \frac{31}{32}, \frac{63}{64}, ...$
5) 3, 4, 5, 6, 7, 8, ...
6) 3 ,6, 9, 12, ,15, 18, ...
7) 3, 6, 12, 24, 48, 96, ...
8) 2, 6, 18, 54, 162, 486, ...
9) 32, -16, 8, -4, 2, -1, ...
10) 1, -1, 1, -1, 1, -1, ...
11) $1, \frac{3}{2}, \frac{5}{4}, \frac{7}{8}, \frac{9}{16}, \frac{11}{32}, ...$
12) $0, \frac{13}{8}, \frac{26}{27}, \frac{39}{64}, \frac{52}{125}, \frac{65}{216}, ...$