CS 278 HW 10

8.1.1 (b) non decreasing because first two terms are equal

(c) n^{th} term is largest integer k such that $k! \leq n$

$a_{1,1}$ $a_{2,2}$ $a_{3,2}$ ...

$a_{6,3}$

non decreasing

(e) The n^{th} term is 3

3, 3, 3, 3, ...

non increasing and non decreasing

(f) n^{th} term is n^2

$a_1 = 1$ $a_2 = 4$ $a_3 = 9$ ...

increasing and non decreasing

(h) n^{th} term is $2^{\lceil \log n \rceil}$

$a_1 = 2^0 = 1$, $a_2 = 2^1 = 2$, $a_3 = 2^2 = 4$

$a_4 = 2^2 = 4$

non decreasing

8.1.2 (b) $a_n = n^2 - 3n$, For $n \geq 1$

$a_1 = -2$, $a_2 = -2$, $a_3 = 0$,

$a_4 = 4$, $a_5 = 10$

non decreasing

(d) $a_n = 2^n - n!$, for $n \geq 1$

$a_1 = 1$, $a_2 = 2$, $a_3 = 2$,

$a_4 = 16 - 24 = -8$

none of the properties

8.1.3 (b) Arithmetic sequence: first value = 2, common difference of 3

$a_1 = 2$, $a_2 = 5$, $a_3 = 8$,

$a_4 = 11$, $a_5 = 14$, $a_6 = 17$

(c) Geometric sequence: First value = 27, common ratio is 1/3.

$a_1 = 27$, $a_2 = 9$, $a_3 = 3$,

$a_4 = 1$, $a_5 = 1/3$, $a_6 = 1/9$