Name _____

Homework 13
section 9.1

1. (4) Find the first four terms of the sequence whose n^{th} term is given by $(-1)^{n+1}\dfrac{3n}{n^2+4n+7}$

2. (4) Find the first six terms of the recursively defined sequence $s_1 = 1, s_2 = 3$, and $s_n = s_{n-1} + 2s_{n-2}$ for $n > 2$.

3. (6) For each of the sequences below, find a formula for the general term, s_n. Answers should not be recursive definitions.

(a) $3, 6, 12, 24, 48, \ldots$

(b) $2, -2, 2, -2, 2, \ldots$

(c) $\frac{-1}{1}, \frac{3}{3}, \frac{-5}{9}, \frac{7}{27}, \frac{-9}{81}, \ldots$

(d) $\frac{1}{3}, \frac{2}{9}, \frac{1}{9}, \frac{4}{81}, \frac{5}{243}, \ldots$

4. (6) Determine whether the sequence converges or diverges, and if it converges, find the limit.

(a) $s_n = \frac{n^2}{2^n}$

(b) $c_n = \sin(\frac{\pi n}{2})$

(c) $s_n = 2^{-n+1} + 3$

(d) $a_1 = 1$, $a_n = 2a_{n-1} + 1$