Name: _____ Sort #: _____

Worksheet 14

Sequences MATH 2205, Fall 2018

1. For the following sequences find a formula for the general term a_n

   (a) $\{\frac{1}{2}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}, \frac{1}{10}, \dots\}$

   (b) $\{4, -1, \frac{1}{4}, -\frac{1}{16}, \frac{1}{64}, \dots\}$

2. Determine if the following sequences converge or diverge.

   (a) $\{a_n\} = \left\{ \dfrac{3+5n^2}{n+n^2} \right\}$

   (b) $\{b_n\} = \left\{ \dfrac{3+5n^2}{1+n} \right\}$

3. Determine if the following sequences converge or diverge.

   (a) $\left\{\left(\frac{1}{2}\right)^n\right\}$

   (b) $\left\{2^{n+1}3^{-n}\right\}$

4. Determine if the following sequences converge or diverge.

   (a) $\{a_n\} = \left\{ \dfrac{(-1)^n}{2\sqrt{n}} \right\}$

   (b) $\{b_n\} = \left\{ \dfrac{4^n}{1+9^n} \right\}$