

Name: _____ **Section:** 201 (starts at 08:00)
202 (starts at 09:35)

Justify your answers.

1. Does the sequence $\{a_n\}$ defined below converge? If so, find its limit. Justify your answer.

$$a_1 = 1$$
$$a_{n+1} = 3 - 1/a_n \text{ for } n > 1.$$

2. Let $\{P_n\}$ be the sequence of partial sums for the series $\sum_{n=1}^{\infty} a_n$, and

$$P_n = \frac{n-1}{n+1}.$$

- (a) What is a_n ?
 - (b) Does the series converge? If so, what does it converge to? Justify all work.
3. Does the following series converge? Justify your answer.

$$\sum_{k=0}^{\infty} \frac{1}{k^2 - 2k + 2}$$