

Place your name on the back of this sheet of paper and nowhere else. Staple your answers face up on the front of this sheet of paper. Failure to follow these directions will cost you 1 point. If you use double-sided printing or print on the back of scrap paper, I will give you one additional point.

1) (10 points each) Find the limits of the following sequences. Show all work.

A) $a_n = \frac{7x - 14}{x^2 - 4}$

B) $a_n = \frac{FV}{(1+r)^n}$

2) This question refers to the series formed by $s_n = \sum_{t=1}^{\infty} \frac{FV}{(1+r)^t}$.

A) (10 points) What is the $\lim_{n \rightarrow \infty} \left| \frac{a_{n+1}}{a_n} \right|$

B) (10 points) Is the series convergent or divergent? Explain your logic. **If convergent**, what does it converge to? Show all work. **If divergent**, what does that say about stock values?

3) (20 points) Do Question #2 on Page 134.

4) (20 points each)

A) Plot the total taxes paid for taxable incomes from \$0 to \$100,000 for a single person. (You will have to get the data from online and tell me your source.) Briefly explain how you got the line. Where is the function not differentiable? Explain your logic.

B) Plot the marginal tax rates for taxable incomes from \$0 to \$100,000 for a single person. Briefly explain how you got the line. Where is the function not differentiable? Explain your logic.