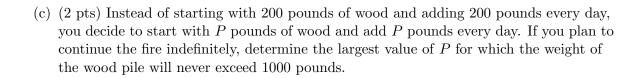
You have 35 minutes to complete this quiz. Eyes on your own paper and good luck!

- 1. **Definitions/Concepts.** (1 pt ea) Decide whether each of the statements below is *True* or *False*. Write the entire word *True* or *False*. If the statement is false, briefly explain why.
 - (a) A convergent sequence is bounded.
 - (b) A bounded sequence converges.
 - (c) Changing a finite number of terms in a series does not change whether or not it converges, although it may change the value of its sum if it does converge.
 - (d) If $\sum_{n=1}^{\infty} a_n$ converges, then $\lim_{n\to\infty} a_n = 0$.
- 2. Questions/Problems. (from April 2011 Final Exam) You are trapped on an island, and decide to build a signal fire to alert passing ships. You start the fire with 200 pounds of wood. During the course of a day, 40% of the wood pile burns away (so 60% remains). At the end of each day, you add another 200 pounds of wood to the pile. Let W_n denote the weight of the wood pile immediately after adding the nth load of wood (the inital 200-pound pile counts as the first load).
 - (a) (3 pts) Find expressions for W_1 , W_2 , W_3 .

(b) (3 pts) Find a closed form expression for W_n (a closed form expression means your answer should not contain a large summation).



3. Computations/Algebra.

(a) (1 pt) Find a formula for the general term of the sequence $\frac{1}{3}$, $\frac{2}{5}$, $\frac{3}{7}$, $\frac{4}{9}$, $\frac{5}{11}$,

$$s_n =$$

- (b) (2 pts) Does the sequence given by $s_n = \frac{2n + (-1)^n 5}{4n (-1)^n 3}$ converge or diverge? If it converges then find its limit.
- (c) (3 pts) Find the first three terms of the sequence of partial sums for the series $\sum_{n=1}^{\infty} \frac{1}{n(n+1)}.$

(d) (2 pts) Does the series $\sum_{n=1}^{\infty} \frac{n+1}{2n+3}$ converge or diverge?