

Math 173 – Quasi-Assignment #6**Do not hand in! Will not be marked!**

1. Find all terms of the finite sequence $a_n = \frac{(-1)^n}{n!}, 1 \leq n \leq 4$.
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2. State whether the following are arithmetic sequences, geometric sequences, or neither. Also, give a formula for the n th term of the sequence. Draw boxes around your answers.

a) 15, 9, 3, -3, ...

b) $0, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \dots$

c) 48, 12, 3, $\frac{3}{4}$, ...

3. Write the first three terms of the infinite sequence given by the recursion formula

$$\begin{cases} a_1 = 2 \\ a_n = (a_{n-1})^2 + 1 \end{cases}$$

4. Calculate the following sums, if possible.

a) $\sum_{j=0}^4 (3j)$

b) $2 + 4 + 6 + \dots + 88$

c) $\sum_{i=0}^{\infty} 300(0.99)^i$

d) $\frac{1}{25} - \frac{1}{20} + \frac{1}{16} - \frac{5}{64} + \dots$

5. Find a formula for a_n , given an arithmetic sequence with $a_5 = 30$ and $a_{10} = -5$. Draw a box around your answer.

6. Expand the following expressions.

a) $(1-i)^5$

b) $(x-\sqrt{2})^6$

7. Evaluate the difference quotient $\frac{f(x+h) - f(x)}{h}$ for $f(x) = x^3$. _____

8. On November 1, an English teacher had his class read five pages of Tolstoy's War and Peace. He then told them that the number of pages they should read each day should be three more than the day before. If they follow the teacher's instructions, how many pages in total will they have read by November 30th? If the paperback has 1904 pages, will they have finished the book?