Senior Analysis Name _____

APs and GPs Lecture 11

1. Write explicit formulas for the following:

a) 4, 8, 16, 32.... b) 4, 8, 12, 16.... c) $\frac{1}{3}, \frac{1}{6}, \frac{1}{9}, \frac{1}{12}$

2. Find t_{20} if $t_n = 4 + 6n$
3. Find the 72^{nd} term of the sequence -5, 3, 11, 19…
4. Find the 12^{th} term of the sequence -10, 10, -10, 10….
5. Find the 9^{th} term of the sequence 12, 6, 3…
6. Which term of the sequence 10, 16, 22… is 604?
7. Which term of the sequence 5, 4, 3 …. is –81?
8. Which term of the sequence 18, 12, 8… is $\frac{64}{27}$?
9. Which term of the sequence $\frac{3}{2}$, 1, $\frac{1}{2}$… is –21?
10. Complete the arithmetic sequence 7, ____, ____, ____, -9.
11. Complete the geometric sequence 8, ___, ___, ___, $\frac{1}{32}$
12. Complete the geometric sequence 2, ___, ___, ___, 18
13. In an AP, if t_{17} = 26 and t_{300} = 592 find t_{61}.
14. For what value of t would t – 3, 2t – 2, and t + 13 be consecutive terms of an AP??
15. If the 12^{th} and the 3^{rd} term of the expansion of $(a+b)^n$ have the same coefficient, find the 14^{th} term of the expansion.
16. Find t so that $3t+2$, $t+4$ and $t-1$ are 3 sequential terms of a GP.
17. Find 3 terms in a GP such that the sum of the 1^{st} two is 4 and the third term is 9.

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Finite Differences Lecture 12

Sequences

Find the function that gives the following terms of a sequence

1. 5, 3, 1, -1…

2. 5, 3, -1, -7, -15….

3. 3, 11, 31, 69, 131….

Expand the following:

4. $\sum_{3}^{7} |2x - 12|$

5. $\sum_{0}^{3} \frac{x^2 + 3}{2^x}$

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Series Lecture 13

1. Find $\sum_{k=2}^{4001} 2k$

2. Find $\sum_{k=20}^{28} 16\left(\frac{-1}{2}\right)^{n-1}$

3. If $t_{400} = -1196$ and $t_{120} = -356$, find t_2 and S_{50} (sum of the first 50 terms)

4. Find 3 numbers in an AP whose sum is 12 and product is 15.

5. Find the sum of the multiples of 6 from -100 to 8000.

6. Write in sigma notation $4 - 8 + 12 - 16 + 20$

7. Write in sigma notation $\frac{1}{1} + \frac{5}{2} + \frac{9}{3} + \frac{13}{4} + \frac{17}{5} ..... + \frac{397}{100}$

8. Find $\sum_{k=1}^{9} \frac{1}{10}(5)^{k-2}$

9. $\sum_{k=0}^{10} \left(-\frac{2}{3}\right)^{k}$

10. Find 3 terms in a GP such that the sum of the 1^{st} two is 2 and the third term is 4.5.

11. Find $\sum_{k=1}^{6} 2(3)^{k}$

12. $\sum_{k=1}^{100} (-1)^{k-1}$