

1. Find the sum of the first 6 terms:  
 $-10 + 2 + 14 + \dots$

2. Evaluate the limit:  
 $\lim_{n \rightarrow \infty} \frac{4n^4 - 6n^3}{10n^4 - 8n^2 + 3} =$

3. Evaluate the limit:  
 $\lim_{n \rightarrow \infty} \frac{8n^5 + 6n^4 + 3n}{2n^2 + 2} =$

4. Write  $.4767676\dots$   
 as a fraction

5. Express  $.01 + .0001 + .000001\dots$   
 using sigma notation

For # 6, # 7, # 8 (Find Sum or state  
 Does Not Exist)

6.  $\frac{3}{4} + \frac{9}{8} + \frac{27}{16} \dots$

7.  $\frac{10}{7} - \frac{20}{28} + \frac{40}{112} - \frac{80}{448} \dots$

8.  $-4 - \sqrt{4}, -4, -4 + \sqrt{4} \dots$

9. Find the sum of the 1st 4 terms  
 $\frac{3}{4} + \frac{9}{16} + \frac{27}{64} \dots$

10. Find the sum of the first  
 10 terms:  $-7 - 6 - 5 - 4 \dots$

11. Find the sum of the first  
 8 terms:  $-18 + 9 - 4.5 + 2.25 \dots$

12. Use the 1st 5 terms of the  
 exponential series to approximate  
 $e^{1.5}$

13. Write  $\sum_{k=0}^2 4\left(\frac{1}{3}\right)^k$  in expanded form  
 and find the sum

14. Use Binomial Theorem:  $(3x - \sqrt{3})^4$

15. Prove by Math Induction  
 $1 + 3 + 5 + \dots + 2n - 1 = n^2$

For # 16 & # 17 Determine if converge  
 or diverges.

16.  $\frac{3}{1^4} + \frac{3}{2^4} + \frac{3}{3^4} \dots$

17.  $\frac{3}{2} + \frac{9}{4} + \frac{27}{6} \dots$

18. Express  $\frac{2 \cdot 4}{1} + \frac{4 \cdot 6}{2} + \frac{6 \cdot 8}{3} \dots$   
 using sigma notation

19. Find  $\ln(-8.4)$

20. Write  $\sqrt{2} - 2i$  in  
 exponential form

21. Use the 1st 5 terms of the trig  
 series to find the value of  
 $\sin \frac{\pi}{2}$  to 4 dec. places

22. Same as # 21 for  $\cos \frac{\pi}{2}$

23. A tennis ball dropped from a  
 height of 40 ft. bounces 50%  
 of the height from which it fell  
 on each bounce. What is the  
 vertical (up & down) distance  
 the ball travels?

24. Evaluate  $\frac{3(6!)}{4!3!}$

25. Find the 4th term of  
 $(x - 2y)^6$