NAME _____

MAT 150 – Homework 24
Sections 7.3 and 7.5

Directions: Show all work and write your final answer in the space provided.

1. Find the 5^{th} term of the geometric sequence if $a_1 = -2$ and $r = 4$. 1. _____

2. Expand: $(3x - 1)^4$ 2. _____

3. Find the 8^{th} term of the sequence 1, 3, 9,… 3. _____

4. Find the sum of the infinite geometric series $2 + \frac{4}{3} + \frac{8}{9} + \ldots$ 4. _____

5. Find $\sum_{k=1}^{7} 4 \cdot 3^{k-1}$. 5. _____

6. Find the fourth term in the expansion of $(4x - 3y)^9$. 6. _____

7. Find the sum of $2 + \frac{6}{5} + \frac{18}{25} + \ldots + 2\left(\frac{3}{5}\right)^{15}$ 7. _____

8. Find the coefficient of x^3 in the expansion of $(3x - 4y)^6$. 8. _____

9. Find $\sum_{k=1}^{60} 4k - 7$. 9. _____

10. Expand: $(2x + 3y)^4$ 10. _____

11. Find $\sum_{k=1}^{\infty} 4\left(-\frac{1}{2}\right)^{k-1}$. 11. _____

12. Write the repeating decimal 0.36363636 as a fraction. 12. _____

13. Find the sum of the infinite geometric series $1 - \frac{3}{4} + \frac{9}{16} - \frac{27}{64} + \ldots$ 13. _____

14. Find the 7^{th} term in the expansion of $(3x + 5)^{11}$. 14. _____

15. Write the repeating decimal 0.426426426426 as a fraction. 15. _____