**GEOMETRIC SERIES HOMEWORK** NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Find the sum of each series.*

1. $-1, -6, -36, -216$ 2. $2, 6, 18, 54, 162$ $3. a\_{1}=-2, r=4, n=7$

4. $-3-12-48…n=6$ 5. $-2+6-18+54…n=8$ 6. $a\_{1}=128, r=\frac{1}{2}, n=4$

7. $4+2+1+…\frac{1}{16}$ 8. $\frac{1}{9}+\frac{1}{3}+1+…2187$

*Determine the number of terms in each series.*

9. $a\_{1}=3, r=-2, s\_{n}=-15$ 10. $a\_{1}=-3, r=4, s\_{n}=-63$

11. $1+2+4+8… s\_{n}=127$ 12. $2+8+32+128…s\_{n}=2730$

*State whether each series will converge or diverges, then state the infinite sum if it exists.*

13. $a\_{1}=6.7 , r=1.1$ 14. $a\_{1}=\frac{5}{6} , r=\frac{3}{5}$

15. $1+\frac{1}{2}+\frac{1}{4}+…$ 16. $3+9+27+81+…$

17. $1-\frac{3}{5}+\frac{9}{25}-\frac{27}{125}+…$ 18. $32+16+8+…$

*Determine the common ratio of the geometric series given the infinite sum.*

19. $a\_{1}=3 , S=2$ 20. $a\_{1}=1 , S=1.25$