

Geometric Series

Directions: Given the first 4 terms of the geometric series, a) Write the **general term** of the series, b) Write the **power series**, c), the **sum of the series, if possible**.

1. $5 + 15 + 45 + 135 + \dots$

5. $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \dots$

2. $3 + 12 + 48 + 92 + \dots$

6. $5 + \frac{-1}{2} + \frac{1}{20} + \frac{-1}{200} + \dots$

3. $1 + \frac{-1}{2} + \frac{1}{4} + \frac{-1}{8} + \dots$

7. $1 + e + e^2 + e^3 + \dots$

4. $2 + 6 + 18 + 54 + \dots$

8. $2 + 2\sqrt{3} + 6 + 6\sqrt{3} + 18 + \dots$

Directions: Given the first 4 terms of the geometric series, a) Write the **general term** of the series, b) Write the **power series**, c), the **sum of the series** and d) the **Interval and Radius of Convergence** of the series.

9. $3 + \frac{3x}{2} + \frac{3x^2}{4} + \frac{3x^3}{8} + \dots$

12. $1 - x + x^2 - x^3 + \dots$

10. $5 + 10x + 20x^2 + 40x^3 + \dots$

13. $1 + 2x + 4x^2 + 8x^3 + \dots$

11. $1 + x + x^2 + x^3 + \dots$

14. $1 - 3x + 9x^2 - 27x^3 + \dots$