Review 9.1 Calculus of a Single Variable: Larson/Hostetler/Edwards

Determine if the Geometric Series Converges or Diverges. If it converges, give its sum.

1. $\sum_{n=0}^{\infty} 3\left(\frac{3}{2}\right)^n$

2. $\sum_{n=0}^{\infty} \left(\frac{9}{4}\right)\left(\frac{1}{4}\right)^n$

3. $\sum_{n=0}^{\infty} \left(\frac{17}{3}\right)\left(\frac{-8}{9}\right)^n$

4. $\sum_{n=0}^{\infty} \left(\frac{5}{4}\right)^n$

5. $\sum_{n=0}^{\infty} (2)(-1.03)^n$

6. $\sum_{n=0}^{\infty} \left(\frac{2}{5}\right)^n$

Find all values of x for which the series converges. For these values of x, write the sum of the series as a function of x.

7. $\sum_{n=1}^{\infty} \frac{x^n}{2^n}$

8. $\sum_{n=1}^{\infty} (3x)^n$

9. $\sum_{n=1}^{\infty} (x-1)^n$

10. $\sum_{n=0}^{\infty} 4\left(\frac{x-3}{4}\right)^n$

11. $\sum_{n=0}^{\infty} (-1)^n x^{2n}$

12. $\sum_{n=1}^{\infty} \left(\frac{x^2}{x^2+4}\right)^n$