Sequences and Series SS8: Geometric Series

Find the value of the sum:

1. $2 + 4 + 8 + 16 + 32 + 64 + 128 + 256 + 512 + 1024$

2. $6 + 3 + 1.5 + \ldots + 0.1875$

3. $1 + 5 + 25 + \ldots + 152587890625$

4. $2 + 8 + 32 + \ldots$

5. $2 + 1 + 0.5 + 0.25 + \ldots$

6. $\frac{5}{2} + \frac{5}{6} + \frac{5}{18} + \cdots$

7. $\displaystyle\sum_{n=1}^{\infty} 3 \cdot 7^{n-1}$

8. $\displaystyle\sum_{n=1}^{\infty} 2 \cdot 0.25^{n-1}$

9. $\displaystyle\sum_{n=3}^{34} 3 \cdot 3^{n-1}$

10. $\displaystyle\sum_{n=1}^{\infty} 5 \cdot \left(\frac{4}{3}\right)^{n-1}$