Do the following series converge or diverge?
If a series converges, find the value to which it converges.

1. $\sum_{k=0}^{\infty} \frac{4}{3^k}$

2. $\sum_{k=0}^{\infty} \frac{3^k}{(-7)^k}$

3. $\sum_{k=2}^{\infty} \frac{5^k}{2^k}$

4. $\sum_{k=2}^{\infty} \left(\frac{3}{4}\right)^k$

   Notice where k begins!

5. $\sum_{k=42}^{\infty} \frac{1}{5^k}$