Do the following series converge or diverge?
If they converge, find the value to which they converge.

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

2. $\displaystyle\sum_{k=0}^{\infty} \frac{3^k}{(-4)^k}$

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

4. $\displaystyle\sum_{k=42}^{\infty} \frac{1}{5^k}$ Notice where k begins!