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

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

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

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

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