1. Determine if each series below is convergent or divergent. If the series is convergent, find its sum.

   (a) $\displaystyle\sum_{n=2}^{\infty} \frac{2}{n^2-1}$

   (b) $\displaystyle\sum_{n=0}^{\infty} \frac{\pi^n}{3^{n+1}}$

   (c) $\displaystyle\sum_{n=0}^{\infty} \frac{1}{\left(\sqrt{2}\right)^n}$

2. Find the values of x for which each series converges. For those values, find the sum of the series.

   (a) $\displaystyle\sum_{n=1}^{\infty} \frac{x^n}{3^n}$

   (b) $\displaystyle\sum_{n=0}^{\infty} \frac{\left(\cos(x)\right)^n}{2^n}$

3. If the n-th partial sum of the series $\displaystyle\sum_{n=1}^{\infty} a_n$ is

   $$s_n = 3 - n2^{-n},$$

   find a_n and $\sum_{n=1}^{\infty} a_n$.