1. State the base point (center) of each power series below and find its **radius of convergence**, R and **interval of convergence**.

   (a) $\sum_{n=1}^{\infty} \dfrac{(x-2)^n}{\sqrt[3]{n}}$

   (b) $\sum_{n=1}^{\infty} \dfrac{(2x)^n}{5^n}$

   (c) $\sum_{n=1}^{\infty} \dfrac{(x-1)^n}{n!}$

2. If you view the power series below as a **geometric series** what can you immediate conclude about (i) its radius and interval of converges and (ii) its sum (where it converges).

$$\sum_{n=1}^{\infty} x^n$$

3. Use the formula above, for the geometric series sum, to write each function below as a power series. Determine its radius and interval of convergence.

(a) $f(x) = \dfrac{1}{1 - 9x^2}$

(b) $f(x) = \dfrac{x}{1 + x}$