

SECTION 6.1: POWER SERIES (DAY 2)

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

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

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

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

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

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

- (3) Use the formula above to write each function below as a power series. Determine its radius and interval of convergence.

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

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