

Solutions

Each answer shows the steps, then the **result**.

2.1

$$\bullet \sum_{n=0}^{\infty} \frac{x^n}{n!}$$

2.2

$$\bullet 1 - \frac{x^2}{2} + \frac{x^4}{24}$$

2.3

$$\bullet \sum_{n=0}^{\infty} \frac{(-x)^n}{n!} = \sum_{n=0}^{\infty} \frac{(-1)^n x^n}{n!}$$

3.1 B

$$\bullet \frac{1}{1-x} = \sum x^n$$

3.2

$$\bullet \frac{1}{1-(-x^2)} = \sum_{n=0}^{\infty} (-x^2)^n = \sum_{n=0}^{\infty} (-1)^n x^{2n}$$

3.3

$$\bullet \sin x = x - \frac{x^3}{6} + \frac{x^5}{120} - \cdots; \text{ multiply by } x: x^2 - \frac{x^4}{6} + \frac{x^6}{120} - \cdots$$