

Solutions

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

2.1

- $\frac{f''}{2!}$

(a)

- $\frac{f''}{2!}(x - a)^2$

2.2

- $P_2(x) = 1 + 2x + \frac{6}{2}x^2 = 1 + 2x + 3x^2$

2.3

- $1 + x + \frac{x^2}{2}$

3.1 B

- the coefficient is $\frac{f''}{2!}$

(a)

- $\frac{f''}{2!} = \frac{f''}{2}$

(a)

- $\frac{f''}{2}$

3.2

(a)

- $P_3(x) = 3 - 2(x - 1) + \frac{4}{2}(x - 1)^2 + \frac{12}{6}(x - 1)^3 = 3 - 2(x - 1) + 2(x - 1)^2 + 2(x - 1)^3$

(b)

- at $x = 1.1$: $3 - 0.2 + 2(0.01) + 2(0.001) = 2.822$

3.3

- Derivatives of $\cos$ at 0: $1, 0, -1, 0, 1$; $P_4(x) = 1 - \frac{x^2}{2} + \frac{x^4}{24}$