4.) CDF = $f'n(x_0) = \dfrac{f(x_1) - f(x_{-1})}{2h}$

Note $x_i = x_0$
$x_{i+1} = x_1$
$x_{i-1} = x_{-1}$

$$f(x_1) = f(x_0) + f'(x_0)(x_1 - x_0) + \frac{f''(x_0)(x_1-x_0)^2}{2!} + \ldots$$

$$= f(x_0) + f'(x_0)h + \frac{f''(x_0)h^2}{2!} + \ldots$$

$$-f(x_{-1}) = -f(x_0) - f'(x_0)(x_{-1} - x_0) - \frac{f''(x_0)(x_{-1}-x_0)^2}{2!} + \ldots$$

$$= -f(x_0) - f'(x_0)(-h) - \frac{f''(x_0)(h)^2}{2!} + \ldots$$

$$= -f(x_0) + f'(x_0)h - \frac{f''(x_0)h^2}{2!} + \ldots$$

$$f(x_1) - f(x_{-1}) = 2f'(x_0)h + \frac{2f'''(x_0)h^3}{3!} + \ldots$$

$$\frac{f(x_1) - f(x_{-1})}{2h} = f'(x_0) + \frac{f'''(x_0)h^2}{3!} + \ldots$$

$$e = \left| f'(x_0) - \left(f'(x_0) + \frac{f'''(x_0)h^2}{3!} + \ldots\right)\right|$$

$$\approx \left| \frac{f'''(x_0)h^2}{3!} \right|$$

$\boxed{h^2 = \text{2nd Order}}$