(1) $u_{i+1} = u_i + u'(x_i)h + u''(x_i)\frac{h^2}{2!} + u^{(3)}(x_i)\frac{h^3}{3!} + u^{(4)}(x_i)\frac{h^4}{4!}$

$+ u_{i-1} = u_i - u'(x_i)h + u''(x_i)\frac{h^2}{2!} - u^{(3)}(x_i)\frac{h^3}{3!} + u^{(4)}(x_i)\frac{h^4}{4!}$

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$u_{i+1} + u_{i-1} = 2u_i + \cancel{\frac{2}{2!}}\, u''(x_i)h^2 + \frac{2}{4!}u^{(4)}(x_i)h^4$ → Rearrange to fit problem:

$u''(x_i)h^2 = u_{i+1} - 2u_i + u_{i-1} - \boxed{\frac{1}{12}}u^{(4)}(x_i)h^4$

$\boxed{C = -\frac{1}{12}}$