$$y''(t_n) \approx a_n = \frac{y_{n+1} + y_{n-1} - 2y_n}{h^2}$$

$$y_{n+1} = y_n + h \cdot y'_n + \frac{h^2}{2} y''_n + \frac{h^3}{6} y'''_n + \frac{h^4}{24} y^{(4)}_n + O^5(\xi)$$

$$y_{n-1} = y_n - h y'_n + \frac{h^2}{2} y''_n - \frac{h^3}{6} y'''_n + \frac{h^4}{24} y^{(4)}_n - O^5(\xi)$$

$$\frac{\cancel{y_n} + \cancel{h \cdot y'_n} + \frac{h^2}{2} y''_n + \cancel{\frac{h^3}{6} y'''_n} + \frac{h^4}{24} y^{(4)}_n + O^5(\xi) + \cancel{y_n} - \cancel{h y'_n} + \frac{h^2}{2} y''_n - \cancel{\frac{h^3}{6} y'''_n} + \frac{h^4}{24} y^{(4)}_n - O^5(\xi) - \cancel{2y_n}}{h^2}$$

$$= y''_n + \frac{h^2}{12} y^{(4)}_n \pm O^5(\xi)$$

fouten.

fout: $|a_n - y''_n| = \frac{h^2}{12} + C$: kwadratisch

ii) zie bord.

$$\left| \frac{1}{2} - \frac{\cos(t+h) + \cos(t-h) - 2y(t)}{h^2} \right|$$