

$$v = Ax^2 + Bx + C$$

$$v' = 2Ax + B \quad \text{u} \quad v'' = 2A$$

Wieder in die allg. diff. Gleichung einsetzen

$$2A + 5(2Ax + B) + 6(Ax^2 + Bx + C) = x^2 + 2x$$

$$(6A)x^2 + (10A + 6B)x + (2A + 5B + 6C) = x^2 + 2x$$

$$\therefore 6A = 1$$

$$A = 1/6$$

$$10A + 6B = 2$$

$$2A + 5B + 6C = 0$$

$$B = 1/18$$

(4)

$$C = -11/108$$

also

$$y = \frac{1}{6}x^2 + \frac{1}{18}x - \frac{11}{108}$$

(5)

also, a particular solution

$$y = u + v$$

$$y = C_1 e^{-3x} + C_2 e^{-2x} + \frac{18x^2 + 6x - 11}{108}$$

Die Werte der Integrationskonstanten bestimmen.