$$a_0 = A \Rightarrow a_2 = -\frac{\alpha(\alpha+1)}{2} A$$

$$a_4 = \frac{(2\times 2 - \alpha(\alpha+1))}{4\times 3} a_2 = \frac{(4-\alpha(\alpha+1))}{4\times 3\times 2}(-\alpha(\alpha+1)A$$

$$= -\frac{\alpha(\alpha+1)(4-\alpha(\alpha+1))}{4!}$$

$$a_1 = B$$

$$a_3 = \frac{2 - \alpha(\alpha+1)}{6} B = \frac{(2-\alpha(\alpha+1))}{6} B$$

$$\cancel{a_5 = 2a_3 - \alpha(}$$

$$a_5 = \frac{(2\times 3 - \alpha(\alpha+1))}{5\times 4} a_3$$

$$= \frac{(6 - \alpha(\alpha+1))}{5\times 4} \times \frac{(2 - \alpha(\alpha+1))}{3\times 2} B$$

$$= \frac{(6-\alpha(\alpha+1))(2 - \alpha(\alpha+1))}{5!} B$$

$$y = A - \frac{\alpha(\alpha+1)}{2} A x^2 - \frac{\alpha(\alpha+1)(4-\alpha(\alpha+1))}{4!} A x^4$$

$$+ \cdots$$

$$+ Bx + \left(\frac{2 - \alpha(\alpha+1)}{6}\right) B x^3$$

$$+ \frac{(6-\alpha(\alpha+1))(2-\alpha(\alpha+1))}{5!} B x^5 + \cdots$$