$eq := y^3 + x \cdot y - 1$

$$y^3 + x\,y - 1 \tag{1}$$

$subs\left(y = a[0] + a[1] \cdot x + a[2] \cdot x^2, eq\right)$

$$\left(x^2\,a_2 + x\,a_1 + a_0\right)^3 + x\left(x^2\,a_2 + x\,a_1 + a_0\right) - 1 \tag{2}$$

$series(\%, x, 3)$

$$a_0^3 - 1 + \left(3\,a_0^2\,a_1 + a_0\right)x + \left(a_0\left(2\,a_0\,a_2 + a_1^2\right) + 2\,a_1^2\,a_0 + a_2\,a_0^2 + a_1\right)x^2 + O\left(x^3\right) \tag{3}$$

$sereq := map(simplify, \%)$

$$a_0^3 - 1 + \left(3\,a_0^2\,a_1 + a_0\right)x + \left(3\,a_0^2\,a_2 + 3\,a_0\,a_1^2 + a_1\right)x^2 + O\left(x^3\right) \tag{4}$$

$coeff(sereq, x, 0) : solve(\%, a[0])$

$$1, -\frac{1}{2} - \frac{1}{2}\,I\sqrt{3}, -\frac{1}{2} + \frac{1}{2}\,I\sqrt{3} \tag{5}$$

$subs(a[0] = 1, sereq)$

$$\left(3\,a_1 + 1\right)x + \left(3\,a_1^2 + a_1 + 3\,a_2\right)x^2 + O\left(x^3\right) \tag{6}$$

$coeff(\%, x, 1)$

$$3\,a_1 + 1 \tag{7}$$

$solve(\%, a[1])$

$$-\frac{1}{3} \tag{8}$$

$subs\left(a[0] = 1, a[1] = -\frac{1}{3}, sereq\right)$

$$3\,a_2\,x^2 + O\left(x^3\right) \tag{9}$$

$subs\left(a[0] = 1, a[1] = -\frac{1}{3}, a[2] = 0, sereq\right)$

$$O\left(x^3\right) \tag{10}$$

$subs\left(y = sum\left(a[n] \cdot x^n, n = 0..10\right), eq\right)$

$$\begin{aligned}&\left(x^{10}\,a_{10} + x^9\,a_9 + x^8\,a_8 + x^7\,a_7 + x^6\,a_6 + x^5\,a_5 + x^4\,a_4 + x^3\,a_3 + x^2\,a_2 + x\,a_1 + a_0\right)^3 \\ &\quad + x\left(x^{10}\,a_{10} + x^9\,a_9 + x^8\,a_8 + x^7\,a_7 + x^6\,a_6 + x^5\,a_5 + x^4\,a_4 + x^3\,a_3 + x^2\,a_2 + x\,a_1\right. \\ &\quad \left. + a_0\right) - 1\end{aligned} \tag{11}$$

$series(\%, x, 11);$

$$\begin{aligned}&a_0^3 - 1 + \left(3\,a_0^2\,a_1 + a_0\right)x + \left(a_0\left(2\,a_0\,a_2 + a_1^2\right) + 2\,a_1^2\,a_0 + a_2\,a_0^2 + a_1\right)x^2 + \left(a_0\left(2\,a_0\,a_3\right.\right. \\ &\quad \left.\left. + 2\,a_1\,a_2\right) + a_1\left(2\,a_0\,a_2 + a_1^2\right) + 2\,a_2\,a_0\,a_1 + a_3\,a_0^2 + a_2\right)x^3 + \left(a_0\left(2\,a_0\,a_4 + 2\,a_1\,a_3\right.\right. \\ &\quad \left.\left. + a_2^2\right) + a_1\left(2\,a_0\,a_3 + 2\,a_1\,a_2\right) + a_2\left(2\,a_0\,a_2 + a_1^2\right) + 2\,a_3\,a_0\,a_1 + a_4\,a_0^2 + a_3\right)x^4 \\ &\quad + \left(a_0\left(2\,a_0\,a_5 + 2\,a_1\,a_4 + 2\,a_2\,a_3\right) + a_1\left(2\,a_0\,a_4 + 2\,a_1\,a_3 + a_2^2\right) + a_2\left(2\,a_0\,a_3\right.\right.\end{aligned} \tag{12}$$

$$+2\,a_1\,a_2\big)+a_3\left(2\,a_0\,a_2+a_1^2\right)+2\,a_4\,a_0\,a_1+a_5\,a_0^2+a_4\big)\,x^5+\big(a_0\left(2\,a_0\,a_6+2\,a_1\,a_5\right.$$
$$+2\,a_2\,a_4+a_3^2\big)+a_1\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_2\left(2\,a_0\,a_4+2\,a_1\,a_3+a_2^2\right)$$
$$+a_3\left(2\,a_0\,a_3+2\,a_1\,a_2\right)+a_4\left(2\,a_0\,a_2+a_1^2\right)+2\,a_5\,a_0\,a_1+a_6\,a_0^2+a_5\big)\,x^6$$
$$+\big(a_0\left(2\,a_0\,a_7+2\,a_1\,a_6+2\,a_2\,a_5+2\,a_3\,a_4\right)+a_1\left(2\,a_0\,a_6+2\,a_1\,a_5+2\,a_2\,a_4+a_3^2\right)$$
$$+a_2\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_3\left(2\,a_0\,a_4+2\,a_1\,a_3+a_2^2\right)+a_4\left(2\,a_0\,a_3\right.$$
$$+2\,a_1\,a_2\big)+a_5\left(2\,a_0\,a_2+a_1^2\right)+2\,a_6\,a_0\,a_1+a_7\,a_0^2+a_6\big)\,x^7+\big(a_0\left(2\,a_0\,a_8+2\,a_1\,a_7\right.$$
$$+2\,a_2\,a_6+2\,a_3\,a_5+a_4^2\big)+a_1\left(2\,a_0\,a_7+2\,a_1\,a_6+2\,a_2\,a_5+2\,a_3\,a_4\right)+a_2\left(2\,a_0\,a_6\right.$$
$$+2\,a_1\,a_5+2\,a_2\,a_4+a_3^2\big)+a_3\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_4\left(2\,a_0\,a_4+2\,a_1\,a_3+\right.$$
$$a_2^2\big)+a_5\left(2\,a_0\,a_3+2\,a_1\,a_2\right)+a_6\left(2\,a_0\,a_2+a_1^2\right)+2\,a_7\,a_0\,a_1+a_8\,a_0^2+a_7\big)\,x^8$$
$$+\big(a_0\left(2\,a_0\,a_9+2\,a_1\,a_8+2\,a_2\,a_7+2\,a_3\,a_6+2\,a_4\,a_5\right)+a_1\left(2\,a_0\,a_8+2\,a_1\,a_7\right.$$
$$+2\,a_2\,a_6+2\,a_3\,a_5+a_4^2\big)+a_2\left(2\,a_0\,a_7+2\,a_1\,a_6+2\,a_2\,a_5+2\,a_3\,a_4\right)+a_3\left(2\,a_0\,a_6\right.$$
$$+2\,a_1\,a_5+2\,a_2\,a_4+a_3^2\big)+a_4\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_5\left(2\,a_0\,a_4+2\,a_1\,a_3+\right.$$
$$a_2^2\big)+a_6\left(2\,a_0\,a_3+2\,a_1\,a_2\right)+a_7\left(2\,a_0\,a_2+a_1^2\right)+2\,a_8\,a_0\,a_1+a_9\,a_0^2+a_8\big)\,x^9$$
$$+\big(a_0\left(2\,a_0\,a_{10}+2\,a_1\,a_9+2\,a_2\,a_8+2\,a_3\,a_7+2\,a_4\,a_6+a_5^2\right)+a_1\left(2\,a_0\,a_9+2\,a_1\,a_8\right.$$
$$+2\,a_2\,a_7+2\,a_3\,a_6+2\,a_4\,a_5\big)+a_2\left(2\,a_0\,a_8+2\,a_1\,a_7+2\,a_2\,a_6+2\,a_3\,a_5+a_4^2\right)$$
$$+a_3\left(2\,a_0\,a_7+2\,a_1\,a_6+2\,a_2\,a_5+2\,a_3\,a_4\right)+a_4\left(2\,a_0\,a_6+2\,a_1\,a_5+2\,a_2\,a_4+a_3^2\right)$$
$$+a_5\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_6\left(2\,a_0\,a_4+2\,a_1\,a_3+a_2^2\right)+a_7\left(2\,a_0\,a_3\right.$$
$$+2\,a_1\,a_2\big)+a_8\left(2\,a_0\,a_2+a_1^2\right)+2\,a_9\,a_0\,a_1+a_{10}\,a_0^2+a_9\big)\,x^{10}+\mathrm{O}\left(x^{11}\right)$$

$sereq := convert(\%, polynom)$

$$a_0^3-1+\left(3\,a_0^2\,a_1+a_0\right)x+\left(a_0\left(2\,a_0\,a_2+a_1^2\right)+2\,a_1^2\,a_0+a_2\,a_0^2+a_1\right)x^2+\big(a_0\left(2\,a_0\,a_3\right. \tag{13}$$
$$+2\,a_1\,a_2\big)+a_1\left(2\,a_0\,a_2+a_1^2\right)+2\,a_2\,a_0\,a_1+a_3\,a_0^2+a_2\big)\,x^3+\big(a_0\left(2\,a_0\,a_4+2\,a_1\,a_3\right.$$
$$+a_2^2\big)+a_1\left(2\,a_0\,a_3+2\,a_1\,a_2\right)+a_2\left(2\,a_0\,a_2+a_1^2\right)+2\,a_3\,a_0\,a_1+a_4\,a_0^2+a_3\big)\,x^4$$
$$+\big(a_0\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_1\left(2\,a_0\,a_4+2\,a_1\,a_3+a_2^2\right)+a_2\left(2\,a_0\,a_3\right.$$
$$+2\,a_1\,a_2\big)+a_3\left(2\,a_0\,a_2+a_1^2\right)+2\,a_4\,a_0\,a_1+a_5\,a_0^2+a_4\big)\,x^5+\big(a_0\left(2\,a_0\,a_6+2\,a_1\,a_5\right.$$
$$+2\,a_2\,a_4+a_3^2\big)+a_1\left(2\,a_0\,a_5+2\,a_1\,a_4+2\,a_2\,a_3\right)+a_2\left(2\,a_0\,a_4+2\,a_1\,a_3+a_2^2\right)$$
$$+a_3\left(2\,a_0\,a_3+2\,a_1\,a_2\right)+a_4\left(2\,a_0\,a_2+a_1^2\right)+2\,a_5\,a_0\,a_1+a_6\,a_0^2+a_5\big)\,x^6$$
$$+\big(a_0\left(2\,a_0\,a_7+2\,a_1\,a_6+2\,a_2\,a_5+2\,a_3\,a_4\right)+a_1\left(2\,a_0\,a_6+2\,a_1\,a_5+2\,a_2\,a_4+a_3^2\right)$$

$$+ a_2 \left(2 a_0 a_5 + 2 a_1 a_4 + 2 a_2 a_3\right) + a_3 \left(2 a_0 a_4 + 2 a_1 a_3 + a_2^2\right) + a_4 \left(2 a_0 a_3 + 2 a_1 a_2\right) + a_5 \left(2 a_0 a_2 + a_1^2\right) + 2 a_6 a_0 a_1 + a_7 a_0^2 + a_6\right) x^7 + \left(a_0 \left(2 a_0 a_8 + 2 a_1 a_7 + 2 a_2 a_6 + 2 a_3 a_5 + a_4^2\right) + a_1 \left(2 a_0 a_7 + 2 a_1 a_6 + 2 a_2 a_5 + 2 a_3 a_4\right) + a_2 \left(2 a_0 a_6 + 2 a_1 a_5 + 2 a_2 a_4 + a_3^2\right) + a_3 \left(2 a_0 a_5 + 2 a_1 a_4 + 2 a_2 a_3\right) + a_4 \left(2 a_0 a_4 + 2 a_1 a_3 + a_2^2\right) + a_5 \left(2 a_0 a_3 + 2 a_1 a_2\right) + a_6 \left(2 a_0 a_2 + a_1^2\right) + 2 a_7 a_0 a_1 + a_8 a_0^2 + a_7\right) x^8 + \left(a_0 \left(2 a_0 a_9 + 2 a_1 a_8 + 2 a_2 a_7 + 2 a_3 a_6 + 2 a_4 a_5\right) + a_1 \left(2 a_0 a_8 + 2 a_1 a_7 + 2 a_2 a_6 + 2 a_3 a_5 + a_4^2\right) + a_2 \left(2 a_0 a_7 + 2 a_1 a_6 + 2 a_2 a_5 + 2 a_3 a_4\right) + a_3 \left(2 a_0 a_6 + 2 a_1 a_5 + 2 a_2 a_4 + a_3^2\right) + a_4 \left(2 a_0 a_5 + 2 a_1 a_4 + 2 a_2 a_3\right) + a_5 \left(2 a_0 a_4 + 2 a_1 a_3 + a_2^2\right) + a_6 \left(2 a_0 a_3 + 2 a_1 a_2\right) + a_7 \left(2 a_0 a_2 + a_1^2\right) + 2 a_8 a_0 a_1 + a_9 a_0^2 + a_8\right) x^9 + \left(a_0 \left(2 a_0 a_{10} + 2 a_1 a_9 + 2 a_2 a_8 + 2 a_3 a_7 + 2 a_4 a_6 + a_5^2\right) + a_1 \left(2 a_0 a_9 + 2 a_1 a_8 + 2 a_2 a_7 + 2 a_3 a_6 + 2 a_4 a_5\right) + a_2 \left(2 a_0 a_8 + 2 a_1 a_7 + 2 a_2 a_6 + 2 a_3 a_5 + a_4^2\right) + a_3 \left(2 a_0 a_7 + 2 a_1 a_6 + 2 a_2 a_5 + 2 a_3 a_4\right) + a_4 \left(2 a_0 a_6 + 2 a_1 a_5 + 2 a_2 a_4 + a_3^2\right) + a_5 \left(2 a_0 a_5 + 2 a_1 a_4 + 2 a_2 a_3\right) + a_6 \left(2 a_0 a_4 + 2 a_1 a_3 + a_2^2\right) + a_7 \left(2 a_0 a_3 + 2 a_1 a_2\right) + a_8 \left(2 a_0 a_2 + a_1^2\right) + 2 a_9 a_0 a_1 + a_{10} a_0^2 + a_9\right) x^{10}$$

$valsa := \{ a[0] = 1 \}$

$$\{a_0 = 1\} \tag{14}$$

for N from 1 to 10 do: $subs(valsa, sereq); coeff(\%, x, N); solve(\%, a[N]); valsa := valsa$ union $\{a[N] = \%\}$;od;

$$\left(3 a_1 + 1\right) x + \left(3 a_1^2 + a_1 + 3 a_2\right) x^2 + \left(4 a_2 a_1 + 3 a_3 + a_1 \left(a_1^2 + 2 a_2\right) + a_2\right) x^3 + \left(4 a_3 a_1 + a_2^2 + 3 a_4 + a_1 \left(2 a_1 a_2 + 2 a_3\right) + a_2 \left(a_1^2 + 2 a_2\right) + a_3\right) x^4 + \left(4 a_4 a_1 + 2 a_2 a_3 + 3 a_5 + a_1 \left(2 a_1 a_3 + a_2^2 + 2 a_4\right) + a_2 \left(2 a_1 a_2 + 2 a_3\right) + a_3 \left(a_1^2 + 2 a_2\right) + a_4\right) x^5 + \left(4 a_5 a_1 + 2 a_2 a_4 + a_3^2 + 3 a_6 + a_1 \left(2 a_1 a_4 + 2 a_2 a_3 + 2 a_5\right) + a_2 \left(2 a_1 a_3 + a_2^2 + 2 a_4\right) + a_3 \left(2 a_1 a_2 + 2 a_3\right) + a_4 \left(a_1^2 + 2 a_2\right) + a_5\right) x^6 + \left(4 a_6 a_1 + 2 a_2 a_5 + 2 a_3 a_4 + 3 a_7 + a_1 \left(2 a_1 a_5 + 2 a_2 a_4 + a_3^2 + 2 a_6\right) + a_2 \left(2 a_1 a_4 + 2 a_2 a_3 + 2 a_5\right) + a_3 \left(2 a_1 a_3 + a_2^2 + 2 a_4\right) + a_4 \left(2 a_1 a_2 + 2 a_3\right) + a_5 \left(a_1^2 + 2 a_2\right) + a_6\right) x^7 + \left(4 a_7 a_1 + 2 a_2 a_6 + 2 a_3 a_5 + a_4^2 + 3 a_8 + a_1 \left(2 a_1 a_6 + 2 a_2 a_5 + 2 a_3 a_4 + 2 a_7\right) + a_2 \left(2 a_1 a_5 + 2 a_2 a_4 + a_3^2 + 2 a_6\right) + a_3 \left(2 a_1 a_4 + 2 a_2 a_3 + 2 a_5\right) + a_4 \left(2 a_1 a_3 + a_2^2 + 2 a_4\right) + a_5 \left(2 a_1 a_2 + 2 a_3\right) + a_6 \left(a_1^2 + 2 a_2\right) + a_7\right) x^8 + \left(4 a_8 a_1 + 2 a_2 a_7$$

$$+ 2\,a_3\,a_6 + 2\,a_4\,a_5 + 3\,a_9 + a_1\left(2\,a_1\,a_7 + 2\,a_2\,a_6 + 2\,a_3\,a_5 + a_4^2 + 2\,a_8\right) + a_2\left(2\,a_1\,a_6 + 2\,a_2\,a_5 + 2\,a_3\,a_4 + 2\,a_7\right) + a_3\left(2\,a_1\,a_5 + 2\,a_2\,a_4 + a_3^2 + 2\,a_6\right) + a_4\left(2\,a_1\,a_4 + 2\,a_2\,a_3 + 2\,a_5\right) + a_5\left(2\,a_1\,a_3 + a_2^2 + 2\,a_4\right) + a_6\left(2\,a_1\,a_2 + 2\,a_3\right) + a_7\left(a_1^2 + 2\,a_2\right) + a_8\Big)\,x^9 + \Big(4\,a_9\,a_1 + 2\,a_2\,a_8 + 2\,a_3\,a_7 + 2\,a_4\,a_6 + a_5^2 + 3\,a_{10} + a_1\left(2\,a_1\,a_8 + 2\,a_2\,a_7 + 2\,a_3\,a_6 + 2\,a_4\,a_5 + 2\,a_9\right) + a_2\left(2\,a_1\,a_7 + 2\,a_2\,a_6 + 2\,a_3\,a_5 + a_4^2 + 2\,a_8\right) + a_3\left(2\,a_1\,a_6 + 2\,a_2\,a_5 + 2\,a_3\,a_4 + 2\,a_7\right) + a_4\left(2\,a_1\,a_5 + 2\,a_2\,a_4 + a_3^2 + 2\,a_6\right) + a_5\left(2\,a_1\,a_4 + 2\,a_2\,a_3 + 2\,a_5\right) + a_6\left(2\,a_1\,a_3 + a_2^2 + 2\,a_4\right) + a_7\left(2\,a_1\,a_2 + 2\,a_3\right) + a_8\left(a_1^2 + 2\,a_2\right) + a_9\Big)\,x^{10}$$

$$3\,a_1 + 1$$

$$-\frac{1}{3}$$

$$\left\{a_0 = 1,\, a_1 = -\frac{1}{3}\right\}$$

$$3\,a_2\,x^2 + \left(-a_2 + 3\,a_3 - \frac{1}{27}\right)x^3 + \left(a_2^2 - a_3 + 3\,a_4 + \frac{2}{9}\,a_2 + a_2\left(2\,a_2 + \frac{1}{9}\right)\right)x^4 + \left(2\,a_2\,a_3 - a_4 + 3\,a_5 - \frac{1}{3}\,a_2^2 + \frac{2}{9}\,a_3 + a_2\left(-\frac{2}{3}\,a_2 + 2\,a_3\right) + a_3\left(2\,a_2 + \frac{1}{9}\right)\right)x^5 + \left(2\,a_2\,a_4 + a_3^2 - a_5 + 3\,a_6 - \frac{2}{3}\,a_2\,a_3 + \frac{2}{9}\,a_4 + a_2\left(a_2^2 - \frac{2}{3}\,a_3 + 2\,a_4\right) + a_3\left(-\frac{2}{3}\,a_2 + 2\,a_3\right) + a_4\left(2\,a_2 + \frac{1}{9}\right)\right)x^6 + \left(2\,a_2\,a_5 + 2\,a_3\,a_4 - a_6 + 3\,a_7 - \frac{2}{3}\,a_2\,a_4 - \frac{1}{3}\,a_3^2 + \frac{2}{9}\,a_5 + a_2\left(2\,a_2\,a_3 - \frac{2}{3}\,a_4 + 2\,a_5\right) + a_3\left(a_2^2 - \frac{2}{3}\,a_3 + 2\,a_4\right) + a_4\left(-\frac{2}{3}\,a_2 + 2\,a_3\right) + a_5\left(2\,a_2 + \frac{1}{9}\right)\right)x^7 + \left(2\,a_2\,a_6 + 2\,a_3\,a_5 + a_4^2 - a_7 + 3\,a_8 - \frac{2}{3}\,a_2\,a_5 - \frac{2}{3}\,a_3\,a_4 + \frac{2}{9}\,a_6 + a_2\left(2\,a_2\,a_4 + a_3^2 - \frac{2}{3}\,a_5 + 2\,a_6\right) + a_3\left(2\,a_2\,a_3 - \frac{2}{3}\,a_4 + 2\,a_5\right) + a_4\left(a_2^2 - \frac{2}{3}\,a_3 + 2\,a_4\right) + a_5\left(-\frac{2}{3}\,a_2 + 2\,a_3\right) + a_6\left(2\,a_2 + \frac{1}{9}\right)\right)x^8 + \left(2\,a_2\,a_7 + 2\,a_3\,a_6 + 2\,a_4\,a_5 - a_8 + 3\,a_9 - \frac{2}{3}\,a_2\,a_6 - \frac{2}{3}\,a_3\,a_5 - \frac{1}{3}\,a_4^2 + \frac{2}{9}\,a_7 + a_2\left(2\,a_2\,a_5 + 2\,a_3\,a_4 - \frac{2}{3}\,a_6 + 2\,a_7\right) + a_3\left(2\,a_2\,a_4 + a_3^2 - \frac{2}{3}\,a_5 + 2\,a_6\right) + a_4\left(2\,a_2\,a_3 - \frac{2}{3}\,a_4 + 2\,a_5\right) + a_5\left(a_2^2 - \frac{2}{3}\,a_3 + 2\,a_4\right) + a_6\left(-\frac{2}{3}\,a_2 + 2\,a_3\right)$$

$$+ a_7 \left(2 a_2 + \frac{1}{9}\right)\Big) x^9 + \Big(2 a_2 a_8 + 2 a_3 a_7 + 2 a_4 a_6 + a_5^2 - a_9 + 3 a_{10} - \frac{2}{3} a_2 a_7$$
$$- \frac{2}{3} a_3 a_6 - \frac{2}{3} a_4 a_5 + \frac{2}{9} a_8 + a_2 \left(2 a_2 a_6 + 2 a_3 a_5 + a_4^2 - \frac{2}{3} a_7 + 2 a_8\right)$$
$$+ a_3 \left(2 a_2 a_5 + 2 a_3 a_4 - \frac{2}{3} a_6 + 2 a_7\right) + a_4 \left(2 a_2 a_4 + a_3^2 - \frac{2}{3} a_5 + 2 a_6\right)$$
$$+ a_5 \left(2 a_2 a_3 - \frac{2}{3} a_4 + 2 a_5\right) + a_6 \left(a_2^2 - \frac{2}{3} a_3 + 2 a_4\right) + a_7 \left(-\frac{2}{3} a_2 + 2 a_3\right)$$
$$+ a_8 \left(2 a_2 + \frac{1}{9}\right)\Big) x^{10}$$

$$3 a_2$$

$$0$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0\right\}$$

$$\left(3 a_3 - \frac{1}{27}\right) x^3 + \left(-a_3 + 3 a_4\right) x^4 + \left(-a_4 + 3 a_5 + \frac{1}{3} a_3\right) x^5 + \Big(3 a_3^2 - a_5 + 3 a_6$$
$$+ \frac{1}{3} a_4\Big) x^6 + \Big(4 a_3 a_4 - a_6 + 3 a_7 - \frac{1}{3} a_3^2 + \frac{1}{3} a_5 + a_3 \left(-\frac{2}{3} a_3 + 2 a_4\right)\Big) x^7$$
$$+ \Big(4 a_3 a_5 + a_4^2 - a_7 + 3 a_8 - \frac{2}{3} a_3 a_4 + \frac{1}{3} a_6 + a_3 \left(-\frac{2}{3} a_4 + 2 a_5\right) + a_4 \left(-\frac{2}{3} a_3$$
$$+ 2 a_4\right)\Big) x^8 + \Big(4 a_3 a_6 + 2 a_4 a_5 - a_8 + 3 a_9 - \frac{2}{3} a_3 a_5 - \frac{1}{3} a_4^2 + \frac{1}{3} a_7 + a_3 \left(a_3^2$$
$$- \frac{2}{3} a_5 + 2 a_6\right) + a_4 \left(-\frac{2}{3} a_4 + 2 a_5\right) + a_5 \left(-\frac{2}{3} a_3 + 2 a_4\right)\Big) x^9 + \Big(4 a_3 a_7$$
$$+ 2 a_4 a_6 + a_5^2 - a_9 + 3 a_{10} - \frac{2}{3} a_3 a_6 - \frac{2}{3} a_4 a_5 + \frac{1}{3} a_8 + a_3 \left(2 a_3 a_4 - \frac{2}{3} a_6$$
$$+ 2 a_7\right) + a_4 \left(a_3^2 - \frac{2}{3} a_5 + 2 a_6\right) + a_5 \left(-\frac{2}{3} a_4 + 2 a_5\right) + a_6 \left(-\frac{2}{3} a_3 + 2 a_4\right)\Big) x^{10}$$

$$3 a_3 - \frac{1}{27}$$

$$\frac{1}{81}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}\right\}$$

$$\left(3 a_4 - \frac{1}{81}\right) x^4 + \left(-a_4 + 3 a_5 + \frac{1}{243}\right) x^5 + \left(-a_5 + 3 a_6 + \frac{1}{2187} + \frac{1}{3} a_4\right) x^6$$
$$+ \left(\frac{2}{27} a_4 - a_6 + 3 a_7 + \frac{1}{3} a_5 - \frac{1}{6561}\right) x^7 + \left(a_4^2 + \frac{2}{27} a_5 - a_7 + 3 a_8 - \frac{4}{243} a_4\right.$$

$$+ \frac{1}{3} a_6 + a_4 \left(2 a_4 - \frac{2}{243}\right)\Big) x^8 + \Big(2 a_4 a_5 + \frac{2}{27} a_6 - a_8 + 3 a_9 - \frac{1}{3} a_4^2 - \frac{4}{243} a_5$$
$$+ \frac{1}{3} a_7 + \frac{1}{531441} + a_4 \left(-\frac{2}{3} a_4 + 2 a_5\right) + a_5 \left(2 a_4 - \frac{2}{243}\right)\Big) x^9 + \Big(2 a_4 a_6 + a_5^2$$
$$+ \frac{2}{27} a_7 - a_9 + 3 a_{10} - \frac{2}{3} a_4 a_5 - \frac{4}{243} a_6 + \frac{1}{3} a_8 + \frac{2}{6561} a_4 + a_4 \Big(-\frac{2}{3} a_5 + 2 a_6$$
$$+ \frac{1}{6561}\Big) + a_5 \left(-\frac{2}{3} a_4 + 2 a_5\right) + a_6 \left(2 a_4 - \frac{2}{243}\right)\Big) x^{10}$$

$$3 a_4 - \frac{1}{81}$$

$$\frac{1}{243}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}\right\}$$

$$3 a_5 x^5 + \Big(-a_5 + 3 a_6 + \frac{4}{2187}\Big) x^6 + \Big(-a_6 + 3 a_7 + \frac{1}{6561} + \frac{1}{3} a_5\Big) x^7 + \Big(\frac{2}{27} a_5 - a_7$$
$$+ 3 a_8 - \frac{1}{19683} + \frac{1}{3} a_6\Big) x^8 + \Big(\frac{2}{27} a_6 - a_8 + 3 a_9 + \frac{1}{3} a_7 - \frac{8}{531441}\Big) x^9 + \Big(a_5^2$$
$$+ \frac{2}{27} a_7 - a_9 + 3 a_{10} - \frac{4}{729} a_5 + \frac{1}{3} a_8 + \frac{1}{531441} + a_5 \Big(2 a_5 - \frac{2}{729}\Big)\Big) x^{10}$$

$$3 a_5$$

$$0$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0\right\}$$

$$\Big(3 a_6 + \frac{4}{2187}\Big) x^6 + \Big(-a_6 + 3 a_7 + \frac{1}{6561}\Big) x^7 + \Big(-a_7 + 3 a_8 - \frac{1}{19683} + \frac{1}{3} a_6\Big) x^8$$
$$+ \Big(\frac{2}{27} a_6 - a_8 + 3 a_9 + \frac{1}{3} a_7 - \frac{8}{531441}\Big) x^9 + \Big(\frac{2}{27} a_7 - a_9 + 3 a_{10} + \frac{1}{3} a_8$$
$$+ \frac{1}{531441}\Big) x^{10}$$

$$3 a_6 + \frac{4}{2187}$$

$$-\frac{4}{6561}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0, a_6 = -\frac{4}{6561}\right\}$$

$$\Big(3 a_7 + \frac{5}{6561}\Big) x^7 + \Big(-a_7 + 3 a_8 - \frac{5}{19683}\Big) x^8 + \Big(-a_8 + 3 a_9 - \frac{32}{531441} + \frac{1}{3} a_7\Big) x^9$$

$$+\left(\frac{2}{27}\,a_7 - a_9 + 3\,a_{10} + \frac{1}{3}\,a_8 + \frac{1}{531441}\right)x^{10}$$

$$3\,a_7 + \frac{5}{6561}$$

$$-\frac{5}{19683}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0, a_6 = -\frac{4}{6561}, a_7 = -\frac{5}{19683}\right\}$$

$$3\,a_8\,x^8 + \left(-a_8 + 3\,a_9 - \frac{77}{531441}\right)x^9 + \left(-a_9 + 3\,a_{10} - \frac{1}{59049} + \frac{1}{3}\,a_8\right)x^{10}$$

$$3\,a_8$$

$$0$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0, a_6 = -\frac{4}{6561}, a_7 = -\frac{5}{19683}, a_8 = 0\right\}$$

$$\left(3\,a_9 - \frac{77}{531441}\right)x^9 + \left(-a_9 + 3\,a_{10} - \frac{1}{59049}\right)x^{10}$$

$$3\,a_9 - \frac{77}{531441}$$

$$\frac{77}{1594323}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0, a_6 = -\frac{4}{6561}, a_7 = -\frac{5}{19683}, a_8 = 0, a_9 = \frac{77}{1594323}\right\}$$

$$\left(3\,a_{10} - \frac{104}{1594323}\right)x^{10}$$

$$3\,a_{10} - \frac{104}{1594323}$$

$$\frac{104}{4782969}$$

$$\left\{a_0 = 1, a_1 = -\frac{1}{3}, a_2 = 0, a_3 = \frac{1}{81}, a_4 = \frac{1}{243}, a_5 = 0, a_6 = -\frac{4}{6561}, a_7 = -\frac{5}{19683}, a_8 = 0, a_9 = \frac{77}{1594323}, a_{10} = \frac{104}{4782969}\right\} \quad (15)$$