Mathematica 11.3 Integration Test Results

Test results for the 17 problems in "1.2.3.5 P(x) (d x) m (a+b x n +c x n (2 n)) p .m"

Problem 1: Result is not expressed in closed-form.

$$\int \frac{d + e \, x + f \, x^2 + g \, x^3 + h \, x^4 + j \, x^5 + k \, x^6 + 1 \, x^7 + m \, x^8}{a + b \, x^3 + c \, x^6} \, \mathrm{d}x$$

Optimal (type 3, 1668 leaves, 37 steps):

$$\frac{k\,x}{c}\,+\,\frac{1\,x^2}{2\,c}\,+\,\frac{m\,x^3}{3\,c}\,-\,\frac{\left(g-\frac{b\,k}{c}\,+\,\frac{2\,c^2\,d+b^2\,k-c\,\,(b\,g+2\,a\,k)}{c\,\sqrt{b^2-4\,a\,c}}\right)\,\text{ArcTan}\Big[\frac{1-\frac{2\,\,2^{1/3}\,c^{1/3}\,x}{\left[b-\sqrt{b^2-4\,a\,c}\,\right]^{1/3}}}{\sqrt{3}}\,\Big]}{2^{1/3}\,\sqrt{3}\,\,c^{1/3}\,\left(b-\sqrt{b^2-4\,a\,c}\,\right)^{2/3}}\,-\,\frac{\left(g-\frac{b\,k}{c}\,+\,\frac{2\,c^2\,d+b^2\,k-c\,\,(b\,g+2\,a\,k)}{c\,\sqrt{b^2-4\,a\,c}}\right)\,\text{ArcTan}\Big[\frac{1-\frac{2\,\,2^{1/3}\,c^{1/3}\,x}{\left[b-\sqrt{b^2-4\,a\,c}\,\right]^{1/3}}}{\sqrt{3}}\,\Big]}{2^{1/3}\,\sqrt{3}\,\,c^{1/3}\,\left(b-\sqrt{b^2-4\,a\,c}\,\right)^{2/3}}\,-\,\frac{1}{2^{1/3}\,\sqrt{3}\,\,c^{1/3}\,\left(b-\sqrt{b^2-4\,a\,c}\,\right)^{1/3}}$$

$$\frac{\left(h-\frac{b\,1}{c}+\frac{2\,c^{2}\,e+b^{2}\,1-c\,\,(b\,h+2\,a\,1)}{c\,\sqrt{b^{2}-4\,a\,c}}\right)\,\text{ArcTan}\Big[\,\frac{1-\frac{2\,\,2^{1/3}\,\,c^{1/3}\,\,x}{\left(b-\sqrt{b^{2}-4\,a\,c}\,\right)^{1/3}}}{\sqrt{3}}\,\Big]}{2^{2/3}\,\sqrt{3}\,\,c^{2/3}\,\left(b-\sqrt{b^{2}-4\,a\,c}\,\right)^{1/3}}$$

$$\frac{\left[g - \frac{b \, k}{c} - \frac{2 \, c^2 \, d - b \, c \, g + b^2 \, k - 2 \, a \, c \, k}{c \, \sqrt{b^2 - 4 \, a \, c}}\right) \, ArcTan \, \Big[\, \frac{1 - \frac{2 \, 2^{1/3} \, c^{1/3} \, x}{\left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}}{\sqrt{3}} \, \Big]}{2^{1/3} \, \sqrt{3} \, c^{1/3} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{2/3}} \, - \frac{1 - \frac{2 \, 2^{1/3} \, c^{1/3} \, x}{\left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}}{2^{1/3} \, \sqrt{3} \, c^{1/3} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{2/3}} \, - \frac{1 - \frac{2 \, 2^{1/3} \, c^{1/3} \, x}{\left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}}{2^{1/3} \, \sqrt{3} \, c^{1/3} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}} \, - \frac{1 - \frac{2 \, 2^{1/3} \, c^{1/3} \, x}{\left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}}{2^{1/3} \, \sqrt{3} \, c^{1/3} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}} \, - \frac{1 - \frac{2 \, 2^{1/3} \, c^{1/3} \, x}{\left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}}{2^{1/3} \, c^{1/3} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)^{1/3}}$$

$$\frac{\left(h-\frac{b\,1}{c}-\frac{2\,c^{2}\,e-b\,c\,h+b^{2}\,1-2\,a\,c\,1}{c\,\sqrt{b^{2}-4\,a\,c}}\right)\,\text{ArcTan}\,\Big[\,\frac{1-\frac{2\,\cdot2^{1/3}\,c^{1/3}\,x}{\left(b+\sqrt{b^{2}-4\,a\,c}\,\right)^{1/3}}\,\Big]}{\sqrt{3}}\,\Big]}{2^{2/3}\,\sqrt{3}\,\,c^{2/3}\,\left(b+\sqrt{b^{2}-4\,a\,c}\,\right)^{1/3}}\,-$$

$$\frac{\left(2\;c^{2}\;f-b\;c\;j+b^{2}\;m-2\;a\;c\;m\right)\;ArcTanh\left[\frac{b+2\;c\;x^{3}}{\sqrt{b^{2}-4\;a\;c}}\right]}{3\;c^{2}\;\sqrt{b^{2}-4\;a\;c}}\;+$$

$$\frac{\left[g - \frac{b\,k}{c} + \frac{2\,c^2\,d + b^2\,k - c\,\,(b\,g + 2\,a\,k)}{c\,\,\sqrt{b^2 - 4\,a\,c}}\right)\,\,Log\left[\,\left(b - \sqrt{b^2 - 4\,a\,c}\,\right)^{\,1/3} \,+\,2^{\,1/3}\,\,c^{\,1/3}\,\,x\,\right]}{3\times 2^{\,1/3}\,\,c^{\,1/3}\,\,\left(b - \sqrt{b^2 - 4\,a\,c}\,\right)^{\,2/3}} \,-\,$$

$$\frac{\left[h - \frac{b1}{c} + \frac{2c^2 e + b^2 1 - c \left(bh + 2a 1\right)}{c \sqrt{b^2 - 4a c}}\right) Log \left[\left(b - \sqrt{b^2 - 4a c}\right)^{1/3} + 2^{1/3} c^{1/3} x\right]}{3 \times 2^{2/3} c^{2/3} \left(b - \sqrt{b^2 - 4a c}\right)^{1/3}} + \frac{\left[g - \frac{bk}{c} - \frac{2c^2 e + b c g + b^2 k - 2a c k}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{1/3} + 2^{1/3} c^{1/3} x\right]}{3 \times 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{2/3}} - \frac{\left[h - \frac{b1}{c} - \frac{2c^2 e + b c h + b^2 1 - 2a c 1}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{1/3} + 2^{1/3} c^{1/3} x\right]}{3 \times 2^{2/3} c^{2/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3}} - \frac{\left[g - \frac{bk}{c} + \frac{2c^2 d + b^2 k - c \left(bg + 2a k\right)}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b - \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b - \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}{6 \times 2^{1/3} c^{1/3} \left(b - \sqrt{b^2 - 4a c}\right)^{2/3}} - \frac{\left[h - \frac{b1}{c} + \frac{2c^2 e + b^2 1 - c \left(bh + 2a 1\right)}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b - \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b - \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}{6 \times 2^{2/3} c^{2/3} \left(b - \sqrt{b^2 - 4a c}\right)^{2/3}} - \frac{\left[h - \frac{b1}{c} + \frac{2c^2 e + b^2 h - c \left(bh + 2a 1\right)}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}{6 \times 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{2/3}} + \frac{\left[h - \frac{b1}{c} - \frac{2c^2 e - b c h + b^2 1 - 2a c 1}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}{6 \times 2^{2/3} c^{2/3} \left(b + \sqrt{b^2 - 4a c}\right)^{2/3}} + \frac{\left[h - \frac{b1}{c} - \frac{2c^2 e - b c h + b^2 1 - 2a c 1}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}{6 \times 2^{2/3} c^{2/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3}} + \frac{\left[h - \frac{b1}{c} - \frac{2c^2 e - b c h + b^2 1 - 2a c 1}{c \sqrt{b^2 - 4a c}}\right] Log \left[\left(b + \sqrt{b^2 - 4a c}\right)^{2/3} - 2^{1/3} c^{1/3} \left(b + \sqrt{b^2 - 4a c}\right)^{1/3} x + 2^{2/3} c^{2/3} x^2\right]}$$

Result (type 7, 223 leaves):

Problem 2: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{a+h x^n + c x^{2n}} dx$$

Optimal (type 5, 124 leaves, 3 steps):

$$\frac{2 \text{ c x Hypergeometric2F1} \left[1, \frac{1}{n}, 1 + \frac{1}{n}, -\frac{2 \text{ c x}^n}{b - \sqrt{b^2 - 4 \text{ a c}}} \right] }{b^2 - 4 \text{ a c} - b \sqrt{b^2 - 4 \text{ a c}}} = \frac{2 \text{ c x Hypergeometric2F1} \left[1, \frac{1}{n}, 1 + \frac{1}{n}, -\frac{2 \text{ c x}^n}{b + \sqrt{b^2 - 4 \text{ a c}}} \right]}{b^2 - 4 \text{ a c} + b \sqrt{b^2 - 4 \text{ a c}}}$$

Result (type 5, 261 leaves):

$$-2\,c\,x\,\left(\frac{1-\left(\frac{x^{n}}{\frac{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}}{2\,c}+x^{n}}\right)^{-1/n}}{b^{2}-4\,a\,c-b\,\sqrt{b^{2}-4\,a\,c}}+\frac{1}{n},\,\,\frac{\frac{-1+n}{n}}{\frac{-1+n}{n}},\,\,\frac{\frac{b-\sqrt{b^{2}-4\,a\,c}}{b-\sqrt{b^{2}-4\,a\,c}}}{b-\sqrt{b^{2}-4\,a\,c}}\right)}{b^{2}-4\,a\,c-b\,\sqrt{b^{2}-4\,a\,c}}+\frac{1}{n}$$

$$\frac{1 - 2^{-1/n} \left(\frac{c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c} + 2 \, c \, x^n}\right)^{-1/n} \, \text{Hypergeometric2F1} \left[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } \frac{-1 + n}{n}\text{, } \frac{b + \sqrt{b^2 - 4 \, a \, c}}{b + \sqrt{b^2 - 4 \, a \, c} + 2 \, c \, x^n}\right]}{\sqrt{b^2 - 4 \, a \, c} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right)}$$

Problem 4: Result more than twice size of optimal antiderivative.

$$\int \frac{d+e\,x+f\,x^2}{a+b\,x^n+c\,x^{2\,n}}\,\mathrm{d} x$$

Optimal (type 5, 404 leaves, 11 steps):

$$\frac{2 \text{ c d x Hypergeometric2F1} \left[1, \frac{1}{n}, 1 + \frac{1}{n}, -\frac{2 \text{ c x}^n}{b - \sqrt{b^2 - 4 \text{ a c}}}\right]}{b^2 - 4 \text{ a c} - b \sqrt{b^2 - 4 \text{ a c}}} = \frac{1}{b^2 - 4 \text{ a c}} = \frac{1$$

Result (type 5, 834 leaves):

$$\begin{split} \frac{1}{12\,a\,\left(-\,b^2+4\,a\,c\right)} \\ x\,\left(2\,f\,x^2\,\left(\left(-\,b^2+4\,a\,c-b\,\sqrt{b^2-4\,a\,c}\,\right)\,\left(1-\left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-3/n}\right. \\ + \left.\frac{3}{n}\,,\,\,-\frac{3}{n}\,,\,\,\frac{-3+n}{n}\,,\,\,\frac{b-\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}}+x^n\right) \right] + \\ \left(-\,b^2+4\,a\,c+b\,\sqrt{b^2-4\,a\,c}\,\right)\,\left(1-8^{-1/n}\left(\frac{c\,x^n}{b+\sqrt{b^2-4\,a\,c}}+2\,c\,x^n\right)^{-3/n}\right. \\ + \left.\left(-\,b^2+4\,a\,c+b\,\sqrt{b^2-4\,a\,c}\,\right)\,\left(1-8^{-1/n}\left(\frac{c\,x^n}{b+\sqrt{b^2-4\,a\,c}}+2\,c\,x^n\right)\right) \right] + \\ 3\,e\,x\,\left(\left(-\,b^2+4\,a\,c-b\,\sqrt{b^2-4\,a\,c}\,\right)\,\left(1-\left(\frac{x^n}{b+\sqrt{b^2-4\,a\,c}}+x^n\right)^{-2/n}\right) \right] \end{split}$$

$$\text{Hypergeometric2F1}\Big[-\frac{2}{n}, -\frac{2}{n}, \frac{-2+n}{n}, \frac{b-\sqrt{b^2-4\,a\,c}}{b-\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\Big] \bigg] + \\ \Big(-b^2+4\,a\,c+b\,\sqrt{b^2-4\,a\,c}\Big) \left(1-4^{-1/n}\left(\frac{c\,x^n}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\right)^{-2/n}\right) \\ \text{Hypergeometric2F1}\Big[-\frac{2}{n}, -\frac{2}{n}, \frac{-2+n}{n}, \frac{b+\sqrt{b^2-4\,a\,c}}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\Big] \right) \bigg] + \\ 6\,d\,\left(-b^2+4\,a\,c-b\,\sqrt{b^2-4\,a\,c}\right) \left(1-\left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n}\right) \\ \text{Hypergeometric2F1}\Big[-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, \frac{b-\sqrt{b^2-4\,a\,c}}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\Big] \right) - 2^{-1/n}\,\sqrt{b^2-4\,a\,c}$$

$$\Big(-b+\sqrt{b^2-4\,a\,c}\Big) \left(\frac{c\,x^n}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\right)^{-1/n} \left(2^{\frac{1}{n}}\left(\frac{c\,x^n}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\right)^{\frac{1}{n}} - \right) \\ \text{Hypergeometric2F1}\Big[-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, \frac{b+\sqrt{b^2-4\,a\,c}}{b+\sqrt{b^2-4\,a\,c}+2\,c\,x^n}\Big] \right) \bigg]$$

Problem 5: Result more than twice size of optimal antiderivative.

$$\int \frac{d + e \ x + f \ x^2 + g \ x^3}{a + b \ x^n + c \ x^{2 \ n}} \ \mathrm{d}x$$

Optimal (type 5, 545 leaves, 13 steps):

$$2 \ c \ d \ x \ Hypergeometric 2F1 \Big[1, \ \frac{1}{n}, \ 1 + \frac{1}{n}, \ -\frac{2 \ c \ x^n}{b - \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$b^2 - 4 \ a \ c - b \ \sqrt{b^2 - 4 \ a \ c}$$

$$2 \ c \ d \ x \ Hypergeometric 2F1 \Big[1, \ \frac{1}{n}, \ 1 + \frac{1}{n}, \ -\frac{2 \ c \ x^n}{b + \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$b^2 - 4 \ a \ c + b \ \sqrt{b^2 - 4 \ a \ c}$$

$$c \ e \ x^2 \ Hypergeometric 2F1 \Big[1, \ \frac{2}{n}, \ \frac{2 + n}{n}, \ -\frac{2 \ c \ x^n}{b - \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$b^2 - 4 \ a \ c - b \ \sqrt{b^2 - 4 \ a \ c}$$

$$c \ e \ x^2 \ Hypergeometric 2F1 \Big[1, \ \frac{3}{n}, \ \frac{3 + n}{n}, \ -\frac{2 \ c \ x^n}{b - \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$a \ \left(b^2 - 4 \ a \ c - b \ \sqrt{b^2 - 4 \ a \ c} \right)$$

$$2 \ c \ f \ x^3 \ Hypergeometric 2F1 \Big[1, \ \frac{3}{n}, \ \frac{3 + n}{n}, \ -\frac{2 \ c \ x^n}{b + \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$2 \ \left(b^2 - 4 \ a \ c + b \ \sqrt{b^2 - 4 \ a \ c} \right)$$

$$c \ g \ x^4 \ Hypergeometric 2F1 \Big[1, \ \frac{4}{n}, \ \frac{4 + n}{n}, \ -\frac{2 \ c \ x^n}{b + \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$2 \ \left(b^2 - 4 \ a \ c + b \ \sqrt{b^2 - 4 \ a \ c} \right)$$

$$c \ g \ x^4 \ Hypergeometric 2F1 \Big[1, \ \frac{4}{n}, \ \frac{4 + n}{n}, \ -\frac{2 \ c \ x^n}{b + \sqrt{b^2 - 4 \ a \ c}} \Big]$$

$$2 \ \left(b^2 - 4 \ a \ c + b \ \sqrt{b^2 - 4 \ a \ c} \right)$$

Result (type 5, 1093 leaves):

$$\frac{1}{24\,\mathsf{a}\,\left(-\,b^2\,+\,4\,\mathsf{a}\,\mathsf{c}\,\right)} \\ \times \left(3\,\mathsf{g}\,\mathsf{x}^3\,\left(\left(-\,b^2\,+\,4\,\mathsf{a}\,\mathsf{c}\,-\,b\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}\,\right)\,\left(1\,-\,\left(\frac{\mathsf{x}^n}{-\,\frac{-\,b\,+\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}}{2\,\mathsf{c}}\,+\,\mathsf{x}^n}\right)^{-\,4/n}\right. \\ \left. + \frac{4}{\mathsf{n}}\,,\,-\,\frac{4}{\mathsf{n}}\,,\,\frac{-\,4\,+\,\mathsf{n}}{\mathsf{n}}\,,\,\frac{\,b\,-\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}}{\,b\,-\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}\,\,+\,2\,\mathsf{c}\,\mathsf{x}^n}\,\right]\right) + \\ \left(-\,b^2\,+\,4\,\mathsf{a}\,\mathsf{c}\,+\,b\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}\,\right) \left(1\,-\,2^{-\,4/n}\,\left(\frac{\,\mathsf{c}\,\mathsf{x}^n}{\,b\,+\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}\,\,+\,2\,\mathsf{c}\,\mathsf{x}^n}\right)^{-\,4/n}\right. \\ \\ \left. + \mathsf{Hypergeometric}\,\mathsf{2F1}\left[-\,\frac{4}{\mathsf{n}}\,,\,-\,\frac{4}{\mathsf{n}}\,,\,\frac{-\,4\,+\,\mathsf{n}}{\mathsf{n}}\,,\,\frac{\,b\,+\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}}{\,b\,+\,\sqrt{\,b^2\,-\,4\,\mathsf{a}\,\mathsf{c}}\,\,+\,2\,\mathsf{c}\,\mathsf{x}^n}\,\right]\right) \right] + \\ \end{aligned}$$

Problem 6: Result more than twice size of optimal antiderivative.

$$\int \frac{1}{\left(\,a\,+\,b\;x^{n}\,+\,c\;x^{2\,n}\,\right)^{\,2}}\;\mathrm{d}x$$

Optimal (type 5, 283 leaves, 4 steps):

$$\frac{x \left(b^2 - 2 \, a \, c + b \, c \, x^n \right)}{a \left(b^2 - 4 \, a \, c \right) \, n \, \left(a + b \, x^n + c \, x^{2 \, n} \right)} - \\ \left(c \left(4 \, a \, c \, \left(1 - 2 \, n \right) - b^2 \, \left(1 - n \right) - b \, \sqrt{b^2 - 4 \, a \, c} \, \left(1 - n \right) \right) \, x \, \text{Hypergeometric2F1} \left[1 \right], \\ \frac{1}{n} \, , \, 1 + \frac{1}{n} \, , \, - \frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}} \right] \right) / \left(a \, \left(b^2 - 4 \, a \, c \right) \, \left(b^2 - 4 \, a \, c - b \, \sqrt{b^2 - 4 \, a \, c} \, \right) \, n \right) - \\ \left(c \, \left(4 \, a \, c \, \left(1 - 2 \, n \right) - b^2 \, \left(1 - n \right) + b \, \sqrt{b^2 - 4 \, a \, c} \, \left(1 - n \right) \right) \, x \, \text{Hypergeometric2F1} \left[1 \right], \, \frac{1}{n} \, , \\ 1 + \frac{1}{n} \, , \, - \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right] \right) / \left(a \, \left(b^2 - 4 \, a \, c \right) \, \left(b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c} \, \right) \, n \right)$$

Result (type 5, 2170 leaves)

$$\frac{\left(-\,b^2\,+\,2\,\,a\,\,c\,+\,b^2\,\,n\,-\,4\,\,a\,\,c\,\,n\right)\,\,x}{a^2\,\,\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n}\,\,+\,\,\frac{\left(\,b^2\,-\,2\,\,a\,\,c\,-\,b^2\,\,n\,+\,4\,\,a\,\,c\,\,n\right)\,\,x}{a^2\,\,\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n}\,\,+\,\,\frac{x\,\,\left(-\,b^2\,+\,2\,\,a\,\,c\,-\,b\,\,c\,\,x^n\right)}{a\,\,\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n}\,\,\left(\,a\,+\,b\,\,x^n\,+\,c\,\,x^{2\,\,n}\,\right)}{a^2\,\,\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n}\,\,\left(\,a\,+\,b\,\,x^n\,+\,c\,\,x^{2\,\,n}\,\right)}\,\,-\,\,\left(\,b^2\,-\,2\,\,a\,\,c\,-\,b^2\,\,n\,\,a\,\,c\,\,n\,\,x^{2\,\,n}\,\right)}$$

$$\frac{1}{a\,\left(-\,b^{\,2}\,+\,4\,a\,c\,\right)}b\,c\,\,x^{1+n}\,\left(x^{n}\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{\,2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{\,2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1} \left[-\frac{1}{n} \text{, } -\frac{1}{n} \text{, } \frac{-1+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{b+\sqrt{b^{2}-4\,a\,c}$$

$$\frac{1}{\text{a}\,\left(-\,b^{2}\,+\,4\,\,\text{a}\,\,c\right)\,\,n}\text{b}\,\,c\,\,x^{1+n}\,\,\left(x^{n}\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,\,\text{a}\,\,c}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{2}\,-\,4\,\,\text{a}\,\,c}}{2\,\,c}}\,+\,x^{n}\right)^{-1/n}\right)$$
 Hypergeometric2F1

$$-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}$$

$$\begin{split} & \text{Hypergeometric2F1} \Big[-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left[-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \Big] + \frac{1}{a\,\left(-b^2+4\,a\,c\right)}b^2\,x \\ & \left[\left(-\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n} \right)^{-1/n} \right] + \frac{1}{a\,\left(-b^2+4\,a\,c\right)}b^2\,x \\ & \left[\left(-\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n} \right)^{-1/n} \right] + \frac{1}{a\,\left(-b^2+4\,a\,c\right)}b^2\,x \\ & \left[\left(-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)^{-1/n} \right] + \frac{1}{a\,\left(-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \Big] \right] \\ & \left[\left(-\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c} \right)^2}{2\,c} \right] + \frac{1}{a\,\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \Big] \right] \\ & \left[\left(-\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \Big] \\ & \left[\left(-\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c} \right)^2}{2\,c} \right] + \frac{1}{a\,\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \Big] \right] \\ & \left[\left(-\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c} \right)^2}{2\,c} \right] + \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{x^n}{-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{x^n}{-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c}} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}}{2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}} {2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}} {2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}} {2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b^2+4\,a\,c \right)} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}} {2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b+\sqrt{b^2-4\,a\,c}} \right)^2} \\ & \left[\left(-\frac{b+\sqrt{b^2-4\,a\,c}} {2\,c} \right) + \frac{\left(-b+\sqrt{b^2-4\,a\,c}} {2\,c} \right)^2}{2\,c} \right] - \frac{1}{a\,\left(-b+\sqrt{b^2$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) +$$

$$\left(1 - \left(\frac{x^n}{-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right)^{-1/n}$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} \right)^{-2}$$

$$\left(\left[1 - \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right]$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) +$$

$$\left(1 - \left(\frac{x^n}{-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right) \right)^{-1/n}$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right) \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right)$$

Problem 7: Result more than twice size of optimal antiderivative.

$$\int \frac{d+e\,x}{\left(\,a+b\,\,x^{n}\,+\,c\,\,x^{2\,n}\,\right)^{\,2}}\,\,\mathrm{d}x$$

Optimal (type 5, 738 leaves, 15 steps):

$$\frac{d \, x \, \left(b^2 - 2\, a\, c + b\, c\, x^n\right)}{a \, \left(b^2 - 4\, a\, c\right) \, n \, \left(a + b\, x^n + c\, x^{2\, n}\right)} + \frac{e\, x^2 \, \left(b^2 - 2\, a\, c + b\, c\, x^n\right)}{a \, \left(b^2 - 4\, a\, c\right) \, n \, \left(a + b\, x^n + c\, x^{2\, n}\right)} - \left[c\, d \, \left(4\, a\, c\, \left(1 - 2\, n\right) - b^2 \, \left(1 - n\right) - b\, \sqrt{b^2 - 4\, a\, c} \, \left(1 - n\right)\right) \, x \, \text{Hypergeometric2F1} \left[1, \frac{1}{n}, \frac{1}{n}, \frac{1}{n}, -\frac{2\, c\, x^n}{b - \sqrt{b^2 - 4\, a\, c}}\right]\right] \bigg/ \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c - b\, \sqrt{b^2 - 4\, a\, c}\right) \, n\right) - \left[c\, d \, \left(4\, a\, c\, \left(1 - 2\, n\right) - b^2 \, \left(1 - n\right) + b\, \sqrt{b^2 - 4\, a\, c} \, \left(1 - n\right)\right) \, x \, \text{Hypergeometric2F1} \left[1, \frac{1}{n}, \frac{1}{n}, \frac{1 + \frac{1}{n}}{n}, -\frac{2\, c\, x^n}{b + \sqrt{b^2 - 4\, a\, c}}\right]\right] \bigg/ \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c + b\, \sqrt{b^2 - 4\, a\, c}\right) n\right) - \left[c\, e\, \left(4\, a\, c\, \left(1 - n\right) - b^2 \, \left(2 - n\right)\right) \, x^2 \, \text{Hypergeometric2F1} \left[1, \frac{2}{n}, \frac{2 + n}{n}, -\frac{2\, c\, x^n}{b - \sqrt{b^2 - 4\, a\, c}}\right]\right] \bigg/ \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c - b\, \sqrt{b^2 - 4\, a\, c}\right) n\right) - \left[c\, e\, \left(4\, a\, c\, \left(1 - n\right) - b^2 \, \left(2 - n\right)\right) \, x^2 \, \text{Hypergeometric2F1} \left[1, \frac{2}{n}, \frac{2 + n}{n}, -\frac{2\, c\, x^n}{b + \sqrt{b^2 - 4\, a\, c}}\right]\right] \bigg/ \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c + b\, \sqrt{b^2 - 4\, a\, c}\right) n\right) - \left[c\, a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) - \left[c\, a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right] \right] \bigg/ \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) - \left[c\, a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right] \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg) - \left(a\, \left(b^2 - 4\, a\, c\right) \, n\right) \bigg)$$

Result (type 5, 4162 leaves)

$$\frac{x \, \left(\text{d} + \text{e} \, x \right) \, \left(- \, b^2 + 2 \, \text{a} \, \text{c} - \text{b} \, \text{c} \, x^n \right)}{\text{a} \, \left(- \, b^2 + 4 \, \text{a} \, \text{c} \right) \, n \, \left(\text{a} + \text{b} \, x^n + \text{c} \, x^{2 \, n} \right)} \, - \, \frac{1}{2 \, \text{a} \, \left(- \, b^2 + 4 \, \text{a} \, \text{c} \right)}$$

$$b\;c\;e\;x^{2+n}\;\left(x^{n}\right)^{\frac{2}{n}-\frac{2+n}{n}}\left(-\frac{1}{\sqrt{b^{2}-4\;a\;c}}\left(\frac{x^{n}}{-\frac{-b-\sqrt{b^{2}-4\;a\;c}}{2\;c}}+x^{n}\right)^{-2/n}\right)^{-2/n}$$

$$\text{Hypergeometric2F1} \left[-\frac{2}{n} \text{, } -\frac{2}{n} \text{, } \frac{-2+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-2/n} \\ \text{Hypergeometric2F1}\left[-\frac{2}{n},-\frac{2}{n},\frac{-2+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{b+\sqrt{b^{2}-4\,a\,c}$$

$$\begin{split} \frac{1}{a \left(-b^2+4\,a\,c\right)\,n}b\,c\,e\,x^{2+n}\,\left(x^n\right)^{\frac{2}{n}-\frac{2+n}{n}}\left(-\frac{1}{\sqrt{b^2-4\,a\,c}}\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-2/n} \\ + \frac{2}{n},\,-\frac{2}{n},\,\frac{-2+n}{n},\,-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right) \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}\left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-2/n} \end{split}$$

$$\text{Hypergeometric2F1} \left[-\frac{2}{n} \text{, } -\frac{2}{n} \text{, } \frac{-2+n}{n} \text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \, \right] \\ +\frac{1}{2\,a\, \left(-b^2+4\,a\,c \right)} b^2\,e\,x^2$$

$$\left(\left[1 - \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-2/n} \right. \\ \left. \text{Hypergeometric2F1} \left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c} + x^n \right] \right] \right) \right/ \\ \left(\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-2/n} \right] \right) \\ \left(\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right) \right] \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right] \\ \left[\frac{x^n}{-\frac{b - \sqrt{b^2 -$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right) + \frac{\left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2}{2 \ c} \right) + \\ \end{array}$$

$$\left[1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-2/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right]\right] \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \\ = \frac{-b + \sqrt{b^{2}$$

$$\left(\frac{b\,\left(-\,b\,+\,\sqrt{\,b^2\,-\,4\,a\,c\,\,}\right)}{2\,c}\,+\,\frac{\left(-\,b\,+\,\sqrt{\,b^2\,-\,4\,a\,c\,\,}\right)^{\,2}}{2\,c}\right)\,-\,\frac{1}{-\,b^2\,+\,4\,a\,c}2\,c\,e\,x^2$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-2/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{2}{n},-\frac{2}{n},\frac{-2+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) \\ \left. \left(\left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-2/n} \right. \\ \left. \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-2/n} \right] \\ \left. \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-2/n} \\ \left. \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-2/n} \right] \\ \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right] \\ \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-2/n} \\ \left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right. + \left. \begin{array}{c|c} \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2 \\ \hline 2 \ c \\ \end{array} \right) + \left. \begin{array}{c|c} c \\ \hline \end{array} \right. + \left. \begin{array}{c|c}$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-2/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right]\right) \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \left(-b^2 + 4 \, a \, c \right) \, n} b^2 \, e \, x^2$$

$$\left[\left[1 - \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right]^{-2/n} \right] + \frac{1}{b \text{ pergeometric 2F1}} \left[-\frac{2}{n}, -\frac{2}{n}, -\frac{2 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)} \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2 \right]$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} \right] 2 \, c \, e \, x^2$$

$$\left[\left[1 - \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right]^{-2/n} \right] + \frac{1}{b \, pergeometric 2F1} \left[-\frac{2}{n}, -\frac{2}{n}, -\frac{2 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \, (-b^2 - 4 \, a \, c} \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}} \right)^2}{2 \, c} \right] + \frac{1}{a \, (-b^2 - 4 \, a \, c} \right]$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \, (-b^2 - 4 \, a \, c} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right] \right] \right]$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)} \,\Big] \,+\, \frac{1}{\sqrt{b^2-4\,a\,c}} + \frac{1}{\sqrt{b^2-4\,a\,c}} +$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right]\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{b+\sqrt{b^{2}-4\,a\,$$

$$\frac{1}{a\,\left(-\,b^{2}\,+\,4\,\,a\,\,c\,\right)\,\,n}b\,\,c\,\,d\,\,x^{1+n}\,\,\left(\,x^{n}\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,\,a\,\,c\,}}\left(\,\frac{x^{n}}{-\,\frac{-\,b-\sqrt{\,b^{2}\,-\,4\,\,a\,\,c\,}}{\,2\,\,c\,}}\,+\,x^{n}\,\right)^{-1/n}\,\,\text{Hypergeometric2F1}\left[\,\frac{x^{n}}{-\,\frac{-\,b-\sqrt{\,b^{2}\,-\,4\,\,a\,\,c\,}}{\,2\,\,c\,}}\,+\,x^{n}\right)^{-1/n}$$

$$-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right] + \frac{1}{a\,\left(-\,b^2+4\,a\,c\right)}b^2\,d\,x \\$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n} \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) / \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n} \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right) / \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n} \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right. + \left. \begin{array}{c|c} \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2 \\ \hline 2 \ c \\ \end{array} \right) + \left. \begin{array}{c|c} c \\ \hline \end{array} \right. + \left. \begin{array}{c|c}$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{1}{n}, -\frac{1}{n}, \frac{-1 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \right) \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4$$

$$\left(\frac{b \, \left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)^2}{2 \, c} \right) - \frac{1}{-b^2 + 4 \, a \, c} 4 \, c \, d \, x$$

$$\left(\left[1 - \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \right. \\ \left. \text{Hypergeometric2F1} \left[-\frac{1}{n}, -\frac{1}{n}, \frac{-1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c} + x^n \right] \right] \right) \right/ \\ \left(\left[\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right]^{-1/n} \right) \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \right] \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \right) \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n \right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \\ \left[1 - \left[\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right]^{-1/n} \right] + \\ \left[\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right)} a \, \left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + x^n \right] \right] / \\ \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \, \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \, \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \, \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{a \, \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{a \, \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} a \, \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right] /$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b + \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right)$$

Problem 8: Result more than twice size of optimal antiderivative.

$$\int \frac{d + e \, x + f \, x^2}{\left(a + b \, x^n + c \, x^{2\,n}\right)^2} \, \mathrm{d} x$$

Optimal (type 5, 1194 leaves, 24 steps):

$$\frac{d \, x \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(a + b \, x^n + c \, x^{2n}\right)} + \frac{e \, x^2 \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(a + b \, x^n + c \, x^{2n}\right)} + \frac{f \, x^3 \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(a + b \, x^n + c \, x^{2n}\right)} + \frac{f \, x^3 \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \right)} - \frac{1}{n}, \, \frac{1}{n}, \, \frac{1}{n}, \, \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right] \, \left/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, h \, \sqrt{b^2 - 4 \, a \, c} \, n \, \right) \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \right)} - \frac{1}{n}, \, \frac{1}{n}, \, \frac{1}{n}, \, \frac{1}{n}, \, \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right] \, \left/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, h \, \sqrt{b^2 - 4 \, a \, c} \, n \, \right) \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \right)} - \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right) \, n \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c - b \, \sqrt{b^2 - 4 \, a \, c}} \, n \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(b^2 - 4 \, a \, c\right) \, n \, \right)} - \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right) \, n \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c}} \, n \, \right)}{a \, \left(a \, b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c - b \, \sqrt{b^2 - 4 \, a \, c}} \, n \, \right)} \, \right)}$$

$$\left\{ 2 \, c \, f \, \left(2 \, a \, c \, \left(3 - 2 \, n\right) \, b \, c \, \left(3 \, a \, n\right) \, \right) \, x^3 \, Hypergeometric \, 2F1 \left[1, \, \frac{3}{n}, \, \frac{3}{n}, \, \frac{3}{n}, \, \frac{3}{n}, \, \frac{3}{n}, \, \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}} \, \right] \right] \, \right/$$

$$\left\{ a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c \, - b \, \sqrt{b^2 - 4 \, a \, c} \, n \, n \, \right) \, n \, \left(2 \, a \, n \, \right) \, \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(2 \, a \, n \, \right) \, n \, \left(2 \, a \, n \, n \, \right) \, \left(a \, \left(b^2 - 4 \, a \, c\right)$$

Result (type 5, 6525 leaves):

 $\left(\frac{b \left(-b - \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b - \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) +$

$$\frac{b^2 e \, x^2}{2 \, a^2 \, \left(-b^2 + 4 \, a \, c \right)} - \frac{2 \, c \, e \, x^2}{a \, \left(-b^2 + 4 \, a \, c \right)} - \frac{b^2 \, e \, x^2}{a^2 \, \left(-b^2 + 4 \, a \, c \right)} - \frac{b^2 \, e \, x^2}{a^2 \, \left(-b^2 + 4 \, a \, c \right)} + \frac{2 \, c \, e \, x^2}{a \, \left(-b^2 + 4 \, a \, c \right)} + \frac{e \, \left(2b^2 - 4 \, a \, c - b^2 \, n + 4 \, a \, c \, n \right) \, x^2}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \right)} - \frac{4 \, c \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \right)} - \frac{b^2 \, f \, x^3}{a^2 \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{a^2 \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \right)} - \frac{4 \, c \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{a \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \right)} + \frac{b^2 \, f \, x^3}{a \,$$

$$\left[1 - \left[\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n}\right]^{-3/n} \right. \\ + \left. \frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c}\right)}{2 \, c} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] - \frac{1}{3 \, (-b^2 + 4 \, a \, c)} \cdot \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] \\ - \left[\left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n}\right)^{-3/n}\right] + \frac{1}{3 \, (-b^2 + 4 \, a \, c)} \cdot \frac{3}{n}, -\frac{3}{n}, -\frac{3 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} - \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} - \frac{b}{2 \, c}\right]\right] \\ - \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b - \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right) + \frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c}\right)}{2 \, c} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] \\ - \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right) - \frac{1}{a \, \left(-b^2 + 4 \, a \, c\right) \, n} \cdot \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{1}{2 \, c}\right]\right] \\ - \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] + \frac{1}{a \, \left(-b^2 + 4 \, a \, c\right) \, n} \cdot \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{1}{2 \, c}\right]\right] \\ - \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] + \frac{1}{2 \, c}\right] + \frac{1}{(-b^2 + 4 \, a \, c) \, n} \cdot \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{1}{2 \, c}\right]$$

$$- \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] + \frac{1}{(-b^2 + 4 \, a \, c) \, n} \cdot \frac{-3 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}\right]$$

$$- \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{(-b + \sqrt{b^2 - 4 \, a \, c})^2}{2 \, c}\right] + \frac{1}{(-b^2 + 4 \, a \, c) \, n} \cdot \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c$$

$$\left[\left[1 - \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right]^{-3/n} \right. \\ + \left. \left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2}{2 \, c} \right] + \left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2}{2 \, c} \right] + \left[\frac{a}{a \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^{-3/n}}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c}} \right)^2}{2 \, c} \right] - \frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c}} \right)^2}{2 \, c} \right] - \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] - \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}}} \left[-\frac{2}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{x^n}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left[-\frac{b - \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \right] + \frac{1}{\sqrt{b^2 -$$

$$\left[\left[1 - \left(\frac{x^n}{-\frac{1-b-\sqrt{b^2-4\,a\,c}}{-\frac{1-b-$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}}\right)^{-2/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}\right)}\right] \right) \\ \left. -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}\right) \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)^2}{2 \, c} \right) \right) + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} 2 \, c \, e \, x^2$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-2/n}\right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{2}{n},-\frac{2}{n},\frac{-2+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) \\ \left(\left[1-\left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-2/n}\right] \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-2/n}\right] \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-2/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b-2}}{2\,c}}+x^n\right)^{-2/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b-2}}{2\,c}}+$$

$$\left(\begin{array}{c|c} b \left(-\,b \,-\,\sqrt{\,b^2 \,-\,4\,\,a\,\,c\,\,} \right) \\ \hline 2\,\,c \\ \end{array} \right. \,+\, \, \frac{\left(-\,b \,-\,\sqrt{\,b^2 \,-\,4\,\,a\,\,c\,\,} \right)^{\,2}}{2\,\,c} \right) \,+\, \\ \end{array} \right. + \left. \begin{array}{c|c} c \\ \hline \end{array} \right)^{\,2} + \left. \begin{array}{c|c$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}}\right)^{-2/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}\right)}\right] \right) \\ \left. -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \right) \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b + \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) -$$

$$\frac{1}{a\,\left(-\,b^2\,+\,4\,a\,c\right)}b\,\,c\,\,d\,\,x^{1+n}\,\,\left(x^n\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a\,c\,}}\left(\frac{x^n}{-\,\frac{-b-\sqrt{\,b^2\,-\,4\,a\,c\,}}{2\,c\,}}+\,x^n\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1} \left[-\frac{1}{n} \text{, } -\frac{1}{n} \text{, } \frac{-1+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{b+\sqrt{b^{2}-4\,a\,c}$$

$$\frac{1}{a\,\left(-\,b^{2}\,+\,4\,a\,c\,\right)\,n}b\,c\,d\,x^{1+n}\,\left(x^{n}\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-1/n}\right)$$
 Hypergeometric2F1 [

$$-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } \frac{-1+n}{n}\text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right] + \frac{1}{a\,\left(-b^2+4\,a\,c\right)}b^2\,d\,x \\ = \frac{1}{a\,$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}\right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)\right]\right) \\ \left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n}\right] \\ \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n}\right] \\ \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n} \\ \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b - \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) +$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}}\right)^{-1/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n}\right)}\right]\right) \\ \left. -\frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \right) \\ = \frac{-b + \sqrt{b^{2} - 4 \, a \, c}}{2 \, c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4 \, a$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)^2}{2 \, c} \right) - \frac{1}{-b^2 + 4 \, a \, c} 4 \, c \, d \, x$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}\right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)\right]\right) \\ \left(\left[1-\left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n}\right] \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n}\right] \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-1/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right. + \left. \frac{\left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2}{2 \ c} \right| + \\ \\ \end{array}$$

$$\left[1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right. \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n} \right] \\ \left. + \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-1/n}$$

$$\left(\frac{b \, \left(-\,b \,+\, \sqrt{\,b^{2} \,-\, 4\,a\,c\,\,} \right)}{2\,\,c} \,+\, \frac{\left(-\,b \,+\, \sqrt{\,b^{2} \,-\, 4\,a\,c\,\,} \right)^{\,2}}{2\,\,c} \right) \, -\, \frac{1}{a \, \left(-\,b^{2} \,+\, 4\,a\,c\,\right)\,\,n} b^{2}\,d\,x$$

$$\left[\left[1 - \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right]^{-1/n} \right] + \text{Hypergeometric2F1} \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right] \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2}{2 \, c} \right] + \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)^{-1/n} \right] + \frac{(-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \left[\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right] \right] \right]$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)^{-1/n} \right] + \frac{1}{(-b^2 + 4 \, a \, c)} + \frac{1}{$$

Problem 9: Result more than twice size of optimal antiderivative.

$$\int\! \frac{d+e\;x+f\;x^2+g\;x^3}{\left(\,a+b\;x^n+c\;x^{2\,n}\,\right)^{\,2}}\;{\rm d}x$$

Optimal (type 5, 1654 leaves, 33 steps)

$$\frac{\text{d x } \left(\text{b}^2-2 \text{ a c} + \text{b c } \text{x}^n\right)}{\text{a } \left(\text{b}^2-4 \text{ a c}\right) \text{ n } \left(\text{a} + \text{b } \text{x}^n + \text{c } \text{x}^{2 \, n}\right)} + \frac{\text{e } \text{x}^2 \, \left(\text{b}^2-2 \text{ a c} + \text{b c } \text{x}^n\right)}{\text{a } \left(\text{b}^2-4 \text{ a c}\right) \text{ n } \left(\text{a} + \text{b } \text{x}^n + \text{c } \text{x}^{2 \, n}\right)} + \frac{\text{e } \text{c } \text{b } \left(\text{b}^2-2 \text{ a c}\right) + \text{b } \text{c } \text{c$$

$$\frac{f \, x^3 \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(a + b \, x^n + c \, x^2 \, n\right)} + \frac{g \, x^4 \, \left(b^2 - 2 \, a \, c + b \, c \, x^n\right)}{a \, \left(b^2 - 4 \, a \, c\right) \, n \, \left(a + b \, x^n + c \, x^2 \, n\right)} - \left[c \, d \, \left(4 \, a \, c \, \left(1 - 2 \, n\right) - b^2 \, \left(1 - n\right) - b \, \sqrt{b^2 - 4 \, a \, c} \, \left(1 - n\right)\right) \, x \, \text{Hypergeometric2F1}[1, \frac{1}{n}, \frac{1}{n}, \frac{1}{n}, \frac{1}{b}, \frac{1}{b^2 - 4 \, a \, c}\right) \right] \bigg/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c - b \, \sqrt{b^2 - 4 \, a \, c}\right) \, n\right) - \left[c \, d \, \left(4 \, a \, c \, \left(1 - 2 \, n\right) - b^2 \, \left(1 - n\right) + b \, \sqrt{b^2 - 4 \, a \, c} \, \left(1 - n\right)\right) \, x \, \text{Hypergeometric2F1}[1, \frac{1}{n}, \frac{1}{n}, \frac{1}{n}, \frac{1}{n}, \frac{1}{b}, \frac{1}{b}, \frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}}\right] \bigg] \bigg/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c}\right) \, n\right) - \left[c \, c \, \left(4 \, a \, c \, \left(1 - n\right) - b^2 \, \left(2 - n\right)\right) \, x^2 \, \text{Hypergeometric2F1}[1, \frac{2}{n}, \frac{2 + n}{n}, -\frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}}\right] \bigg] \bigg/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, n\right) - \left[c \, c \, \left(4 \, a \, c \, \left(1 - n\right) - b^2 \, \left(2 - n\right)\right) \, x^3 \, \text{Hypergeometric2F1}[1, \frac{2}{n}, \frac{2 + n}{n}, -\frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}}\right] \bigg] \bigg/ \left(a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c\right) \, b \, \sqrt{b^2 - 4 \, a \, c}\right) n\right) - \left[2 \, c \, f \, \left(2 \, a \, c \, \left(3 - 2 \, n\right) - b^2 \, \left(3 - n\right)\right) \, x^3 \, \text{Hypergeometric2F1}[1, \frac{3}{n}, \frac{3 + n}{n}, -\frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}}\right] \bigg] \bigg/ \left(3 \, a \, \left(b^2 - 4 \, a \, c\right) \, \left(b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c}\right) n\right) - \left[c \, g \, \left(4 \, a \, c \, \left(2 - n\right) - b^2 \, \left(4 - n\right)\right) \, x^4 \, \text{Hypergeometric2F1}[1, \frac{4}{n}, \frac{4 + n}{n}, \frac{4 + n}{n}, -\frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}}\right] \bigg] \bigg/ \left(2 \, a \, \left(b^2 - 4 \, a \, c\right) \, \left[b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c}\right) n\right) - \left[c \, g \, \left(4 \, a \, c \, \left(2 - n\right) - b^2 \, \left(4 - n\right)\right) \, x^4 \, \text{Hypergeometric2F1}[1, \frac{4}{n}, \frac{4 + n}{n}, \frac{4 - n}{n}, \frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}}\right] \right) \bigg/ \left(2 \, a \, \left(b^2 - 4 \, a \, c\right) \, \left[b^2 - 4 \, a \, c + b \, \sqrt{b^2 - 4 \, a \, c}\right) n\right) - \left[c \, b^2 \, \left(2 \, a \, c\right$$

$$\frac{2 \, b \, c^2 \, f \, \left(3 - n\right) \, x^{3+n} \, \text{Hypergeometric2F1} \left[1, \, \frac{3+n}{n}, \, 2 + \frac{3}{n}, \, -\frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}}\right]}{a \, \left(b^2 - 4 \, a \, c\right)^{3/2} \, \left(b - \sqrt{b^2 - 4 \, a \, c}\right) \, n \, \left(3 + n\right)} + \\ \frac{2 \, b \, c^2 \, f \, \left(3 - n\right) \, x^{3+n} \, \text{Hypergeometric2F1} \left[1, \, \frac{3+n}{n}, \, 2 + \frac{3}{n}, \, -\frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}}\right]}{a \, \left(b^2 - 4 \, a \, c\right)^{3/2} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right) \, n \, \left(3 + n\right)} - \\ \left(2 \, b \, c^2 \, g \, \left(4 - n\right) \, x^{4+n} \, \text{Hypergeometric2F1} \left[1, \, \frac{4+n}{n}, \, 2 \, \left(1 + \frac{2}{n}\right), \, -\frac{2 \, c \, x^n}{b - \sqrt{b^2 - 4 \, a \, c}}\right]\right) \right/ \\ \left(a \, \left(b^2 - 4 \, a \, c\right)^{3/2} \, \left(b - \sqrt{b^2 - 4 \, a \, c}\right) \, n \, \left(4 + n\right)\right) + \\ \left(2 \, b \, c^2 \, g \, \left(4 - n\right) \, x^{4+n} \, \text{Hypergeometric2F1} \left[1, \, \frac{4+n}{n}, \, 2 \, \left(1 + \frac{2}{n}\right), \, -\frac{2 \, c \, x^n}{b + \sqrt{b^2 - 4 \, a \, c}}\right]\right) \right/ \\ \left(a \, \left(b^2 - 4 \, a \, c\right)^{3/2} \, \left(b + \sqrt{b^2 - 4 \, a \, c}\right) \, n \, \left(4 + n\right)\right)$$

Result (type 5, 8737 leaves):

$$\begin{split} &\frac{b^2 \, e \, x^2}{2 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{2 \, c \, e \, x^2}{a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{b^2 \, e \, x^2}{a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{2 \, c \, e \, x^2}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{e \, \left(2 \, b^2 - 4 \, a \, c \, -b^2 \, n + 4 \, a \, c \, n \, \right)}{2 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{b^2 \, f \, x^3}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{4 \, c \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{b^2 \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{4 \, c \, f \, x^3}{3 \, a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{b^2 \, f \, x^3}{a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{f \, \left(3 \, b^2 - 6 \, a \, c \, -b^2 \, n + 4 \, a \, c \, n \right)}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{b^2 \, g \, x^4}{3 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{b^2 \, g \, x^4}{a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{2 \, c \, g \, x^4}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{g \, \left(4 \, b^2 - 8 \, a \, c \, -b^2 \, n + 4 \, a \, c \, n \right)}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{x \, \left(d + e \, x + f \, x^2 + g \, x^3 \right) \, \left(-b^2 + 2 \, a \, c \, -b \, c \, x^n \right)}{a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{g \, \left(4 \, b^2 - 8 \, a \, c \, -b^2 \, n + 4 \, a \, c \, n \right)}{4 \, a^2 \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{x \, \left(d + e \, x + f \, x^2 + g \, x^3 \right) \, \left(-b^2 + 2 \, a \, c \, -b \, c \, x^n \right)}{a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{g \, \left(4 \, b^2 - 4 \, a \, c \, \right)}{4 \, a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{x \, \left(d + e \, x + f \, x^2 + g \, x^3 \right) \, \left(-b^2 + 2 \, a \, c \, -b \, c \, x^n \right)}{a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left(-b^2 + 4 \, a \, c \, \right)} + \frac{1}{a \, \left($$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-4/n} \text{Hypergeometric2F1}\Big[-\frac{4}{n},-\frac{4}{n},\frac{-4+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\Big]\right) + \frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}$$

$$\frac{1}{a\,\left(-\,b^{2}\,+\,4\,a\,c\,\right)\,n}b\,c\,g\,x^{4+n}\,\left(x^{n}\right)^{\frac{4}{n}-\frac{4+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}\,+\,x^{n}\right)^{-4/n}\,\text{Hypergeometric2F1}\left[-\,\frac{x^{n}}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\right]^{-4/n}$$

$$-\frac{4}{n}, -\frac{4}{n}, \frac{-4+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-4/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{4}{n}\text{, } -\frac{4}{n}\text{, } -\frac{4+n}{n}\text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right) + \frac{1}{4\,a\,\left(-b^2+4\,a\,c\right)}b^2\,g\,x^4 \\$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-4/n}\right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{4}{n},-\frac{4}{n},\frac{-4+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) \\ \left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-4/n}\right] \\ \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-4/n}\right] \\ \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-4/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-4/n} \\ \left(\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right) + \frac{\left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2}{2 \ c} \right) + \\$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-4/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{4}{n}, -\frac{4}{n}, -\frac{4 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \right) \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \right) \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n} \\ = \frac{-b + \sqrt{b^{2} - 4$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)^2}{2 \, c} \right) - \frac{1}{-b^2 + 4 \, a \, c} c \, g \, x^4$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-4/n}\right. \\ \left. + ypergeometric 2F1\left[-\frac{4}{n},-\frac{4}{n},\frac{-4+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) \\ \left. - \frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ = \left[-\frac{4}{n},\frac{-4+n}{n},\frac{-4+n}{n},\frac{-4+n}{n},\frac{-4+n}{n}\right] \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right. + \left. \begin{array}{c|c} \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2 \\ \hline 2 \ c \\ \end{array} \right) + \left. \begin{array}{c|c} c \\ \hline \end{array} \right. + \left. \begin{array}{c|c}$$

$$\left(1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-4/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{4}{n}, -\frac{4}{n}, \frac{-4 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right]\right) \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)} \\ = \frac$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right) - \frac{1}{a \left(-b^2 + 4 \, a \, c \right)} \, b^2 \, g \, x^4$$

$$\left(\left[1 - \left[\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right]^{-4/n} \right] + \frac{1}{b \text{ pergeometric 2F1}} \left[-\frac{4}{n}, -\frac{4}{n}, -\frac{4 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}} {2 \, c} \right)^2}{2 \, c} \right) + \frac{1}{\left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c}} {2 \, c} + x^n \right)} \right)^{-4/n} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \left[-\frac{4}{n}, -\frac{4}{n}, -\frac{4 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c}} {2 \, c} + x^n \right)} \right)^{-4/n} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) + \frac{1}{n} \left(-\frac$$

$$\text{Hypergeometric2F1} \left[-\frac{3}{n} \text{, } -\frac{3}{n} \text{, } \frac{-3+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right] \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-3/n} \\ \text{Hypergeometric2F1}\left[-\frac{3}{n},-\frac{3}{n},\frac{-3+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right]\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{b+\sqrt{b^{2}-4\,a\,$$

$$\frac{1}{a\,\left(-\,b^{2}\,+\,4\,a\,c\,\right)\,n}b\,\,c\,\,f\,\,x^{3+n}\,\,\left(x^{n}\,\right)^{\frac{3}{n}-\frac{3+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-3/n}\,\,\text{Hypergeometric2F1}\left[-\,\frac{x^{n}}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}+x^{n}\right)^{-3/n}\left(x^{n}+x^{n}\right)^{-3/n}\left(x^{n}+x^{n}+x^{n}\right)^{-3/n}\left(x^{n}+x^{n}+x^{n}+x^{n}+x^{n}\right)^{-3/n}\,\,\text{Hypergeometric2F1}\left(x^{n}+x^{n$$

$$-\frac{3}{n}, -\frac{3}{n}, \frac{-3+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-3/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{3}{n}\text{, }-\frac{3}{n}\text{, }\frac{-3+n}{n}\text{, }-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right) + \frac{1}{3\,a\,\left(-\,b^2+4\,a\,c\right)}b^2\,f\,x^3$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-3/n}\right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{3}{n},-\frac{3}{n},\frac{-3+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right]\right]\right) \\ \left. \left(\left[1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right]^{-3/n}\right. \\ \left. \left(1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-3/n}\right] \\ \left. \left(1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-3/n}\right] \\ \left(1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-3/n} \\ \left(1-\frac{x^n}{-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b - \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) +$$

$$\left[1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-3/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{3}{n}, -\frac{3}{n}, \frac{-3 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right]\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}\right] \\ \left. -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c\left(-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right)}$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \, \right)^2}{2 \, c} \right) - \frac{1}{3 \, \left(-b^2 + 4 \, a \, c \right)} 4 \, c \, f \, x^3 \right)$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}}+x^n\right)^{-3/n}\right.\\ \left.+ypergeometric2F1\left[-\frac{3}{n},-\frac{3}{n},\frac{-3+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)\right]\right)\right/$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \\ \left[1 - \left[\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right]^{-3/n} \right] + \\ \left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{3}{n}, -\frac{3}{n}, -\frac{3 + n}{n}, -\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-3/n} \right] + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \left(-b^2 + 4 \, a \, c \right) \, n} b^2 \, f \, x^3 \right]$$

$$\left[\left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-3/n} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} - \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right]$$

$$\left[\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-3/n} \right] + \frac{1}{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2} \right] + \frac{1}{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right) \, n} - \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right]$$

$$\left[\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right] \right]$$

$$\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right] \right]$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b + \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) \right) - \left(\frac{b \left(-b + \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right) = 0$$

$$\frac{1}{2 \ a \ \left(-b^2+4 \ a \ c\right)} b \ c \ e \ x^{2+n} \ \left(x^n\right)^{\frac{2}{n}-\frac{2+n}{n}} \left(-\frac{1}{\sqrt{b^2-4 \ a \ c}} \left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4 \ a \ c}}{2 \ c}} + x^n\right)^{-2/n} \right)^{-2/n} dx^n$$

$$\text{Hypergeometric2F1} \Big[-\frac{2}{n} \text{, } -\frac{2}{n} \text{, } \frac{-2+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n\right)} \, \Big] \, + \, \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-2/n} \\ \text{Hypergeometric2F1}\left[-\frac{2}{n},-\frac{2}{n},\frac{-2+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right]\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n} \\ +\frac{-b+\sqrt{b^{2}$$

$$\frac{1}{a\,\left(-\,b^{2}\,+\,4\,a\,c\,\right)\,n}b\,\,c\,\,e\,\,x^{2+n}\,\left(x^{n}\,\right)^{\frac{2}{n}-\frac{2+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-2/n}\right) \\ + \left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}\right)^{-2/n}\right)^{-2/n} + \left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}\right)^{-2/n}\right) \\ + \left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}\right)^{-2/n}\right)^{-2/n} + \left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\right)^{-2/n} \\ + \left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}{2\,c\,}\right)^{-2/n} + \left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}{2\,c\,}\right)^{-2/n} \\ + \left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}{2\,c\,}\right)^{-2/n} + \left(-\,\frac{x^{n}}{-\,\frac{b^{2}\,-\,4\,a\,c\,}}{2\,c\,}\right)^{-2/n} \\ + \left(-\,$$

$$-\frac{2}{n}, -\frac{2}{n}, \frac{-2+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-2/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{2}{n}\text{, } -\frac{2}{n}\text{, } \frac{-2+n}{n}\text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right] + \frac{1}{2\,a\,\left(-\,b^2+4\,a\,c\right)}b^2\,e\,x^2$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-2/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{2}{n}\text{, } -\frac{2}{n}\text{, } \frac{-2+n}{n}\text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)\right]\right) \\ \left. -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ \left. -\frac{b$$

$$\left(\begin{array}{c|c} b \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right) \\ \hline 2 \ c \\ \end{array} \right. + \left. \begin{array}{c|c} \left(-b - \sqrt{b^2 - 4 \ a \ c} \ \right)^2 \\ \hline 2 \ c \\ \end{array} \right) + \left. \begin{array}{c|c} c \\ \hline \end{array} \right. + \left. \begin{array}{c|c}$$

$$\left[1 - \left(\frac{x^{n}}{-\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}}\right)^{-2/n} \right. \\ \left. + \text{Hypergeometric2F1}\left[-\frac{2}{n}, -\frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right]\right] \\ \left. - \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c} + x^{n}\right) \\ \left. + \frac{-b + \sqrt{b^{2} - 4\,a\,c}}{2\,c$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{-b^2 + 4 \, a \, c} 2 \, c \, e \, x^2$$

$$\left[\left[1 - \left(\frac{x^0}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^0} \right)^{-2/n} \right] + \text{Hypergeometric2F1} \left[-\frac{2}{n}, \frac{2}{n}, \frac{-2 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \left(-b^2 + 4 \, a \, c \right) \, n} b^2 \, e \, x^2$$

$$\left[\left[1 - \left(\frac{x^0}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-2/n} \right] + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] - \frac{1}{a \left(-b^2 + 4 \, a \, c \right) \, n} b^2 \, e \, x^2$$

$$\left[\left[1 - \left(\frac{x^0}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-2/n} \right] + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}$$

$$\left[\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{a \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)} \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + \frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right]$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \\ \left(1 - \left(\frac{x^n}{\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{\frac{-2/n}{n}} \text{ Hypergeometric2F1} \left[-\frac{2}{n}, -\frac{2}{n}, -\frac{2 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right] \right] \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \\ \frac{1}{a \left(-b^2 + 4 \, a \, c \right)} b \, c \, d \, x^{\frac{1-n}{n}} \left(x^n \right)^{\frac{1-1n}{n}} \left(-\frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left(-\frac{x^n}{\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)^{-1/n} \right)$$

$$\text{Hypergeometric2F1} \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \\ \frac{x^n}{2 \, c} - \frac{1}{2 \, c} \left(-\frac{1}{2 \, b + \sqrt{b^2 - 4 \, a \, c}} \left(-\frac{x^n}{2 \, c} + x^n \right) \right) + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left(-\frac{1}{2 \, c} \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} + x^n \right) \right) \right)$$

$$\frac{1}{a \left(-b^2 + 4 \, a \, c \right) \, n} b \, c \, d \, x^{\frac{1-n}{n}} \left(x^n \right)^{\frac{1-1n}{n}} \left(-\frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left(-\frac{x^n}{2 \, c} + x^n \right) \right) + \frac{1}{\sqrt{b^2 - 4 \, a \, c}} \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} \right) \right)$$

$$\frac{1}{-n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right) + \frac{1}{a \left(-b^2 + 4 \, a \, c \right)} \right)$$

$$\text{Hypergeometric2F1} \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1+n}{n}, -\frac{b + \sqrt{b^2 - 4 \, a \, c}}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right) + \frac{1}{a \left(-b^2 + 4 \, a \, c \right)} \right)$$

$$\frac{1}{a \left(-b^2 + 4 \, a \, c \right)} \right)$$

$$\frac{1}{a \left(-\frac{b + \sqrt{b^2 - 4 \, a \, c}}}{2 \, c \left(-\frac{b + \sqrt{b^2 - 4 \, a \, c}}}{2 \, c} + x^n \right)} \right) + \frac{1}{a \left(-b^2 + 4 \, a \, c \right)} \right)$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \\ \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right. \\ \left. \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{-b^2 + 4 \, a \, c} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{-b^2 + 4 \, a \, c} \right. \\ \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right) \right] \right/ \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \\ \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right) \, n} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right) \, n} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right) \, n} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right. \\ \left. \left(\frac{b \left(-b + \sqrt{$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} 2 \, c \, d \, x$$

$$\left(\left[1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right. \right. + \left. \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{n}, -\frac{1}{n}, -\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right) \right] \right)$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) +$$

$$\left(1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right) \right. \right]$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right)$$

Problem 17: Result more than twice size of optimal antiderivative.

$$\int \frac{A + B \, x^n + C \, x^{2\,n} + D \, x^{3\,n}}{\left(a + b \, x^n + c \, x^{2\,n}\right)^2} \, \mathrm{d}x$$

Optimal (type 5, 494 leaves, 4 steps):

$$\begin{array}{l} \left(x \; \left(\mathsf{A} \, \mathsf{C} \; \left(\mathsf{b}^2 - 2 \, \mathsf{a} \, \mathsf{C} \right) - \mathsf{a} \; \left(\mathsf{b} \, \mathsf{B} \, \mathsf{C} - 2 \, \mathsf{a} \, \mathsf{C} \, \mathsf{C} + \mathsf{a} \, \mathsf{b} \, \mathsf{D} \right) + \left(\mathsf{b} \, \mathsf{C} \; \left(\mathsf{A} \, \mathsf{C} + \mathsf{a} \, \mathsf{C} \right) - \mathsf{a} \, \mathsf{b}^2 \, \mathsf{D} - 2 \, \mathsf{a} \, \mathsf{C} \; \left(\mathsf{B} \, \mathsf{C} - \mathsf{a} \, \mathsf{D} \right) \right) \, x^n \right) \right) \, / \\ \left(\mathsf{a} \, \mathsf{c} \; \left(\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c} \right) \; \left(\mathsf{a} + \mathsf{b} \, \mathsf{x}^n + \mathsf{c} \, \mathsf{x}^{2\, n} \right) \right) + \\ \left(\left(\mathsf{a} \, \mathsf{b}^2 \, \mathsf{D} - \mathsf{b} \, \mathsf{c} \; \left(\mathsf{A} \, \mathsf{C} + \mathsf{a} \, \mathsf{C} \right) \; \left(\mathsf{1} - \mathsf{n} \right) + 2 \, \mathsf{a} \, \mathsf{c} \; \left(\mathsf{B} \, \mathsf{C} \; \left(\mathsf{1} - \mathsf{n} \right) - \mathsf{a} \, \mathsf{D} \; \left(\mathsf{1} + \mathsf{n} \right) \right) + \frac{1}{\sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}}} \left(\mathsf{A} \, \mathsf{c}^2 \right) \right) \right) \right) \\ \times \mathsf{Hypergeometric} \mathsf{C2F1} \left[\mathsf{1}, \; \frac{1}{\mathsf{n}}, \; \mathsf{1} + \frac{1}{\mathsf{n}}, \; - \frac{2 \, \mathsf{c} \, \mathsf{x}^n}{\mathsf{b} - \sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}}} \right] \right) \, / \left(\mathsf{a} \, \mathsf{c} \; \left(\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c} \right) \; \left(\mathsf{b} - \sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}} \; \right) \mathsf{n} \right) + \\ \left(\left(\mathsf{a} \, \mathsf{b}^2 \, \mathsf{D} - \mathsf{b} \, \mathsf{c} \; \left(\mathsf{A} \, \mathsf{c} + \mathsf{a} \, \mathsf{C} \right) \; \left(\mathsf{1} - \mathsf{n} \right) + 2 \, \mathsf{a} \, \mathsf{c} \; \left(\mathsf{B} \, \mathsf{c} \; \left(\mathsf{1} - \mathsf{n} \right) - \mathsf{a} \, \mathsf{D} \; \left(\mathsf{1} + \mathsf{n} \right) \right) - \frac{1}{\sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}}} \left(\mathsf{A} \, \mathsf{c}^2 \right) \right) \right) \right) \\ \times \mathsf{Hypergeometric} \mathsf{2F1} \left[\mathsf{1}, \; \frac{1}{\mathsf{n}}, \; \mathsf{1} + \frac{1}{\mathsf{n}}, \; - \frac{2 \, \mathsf{c} \, \mathsf{x}^n}{\mathsf{b} + \sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}}} \right] \right) \, / \left(\mathsf{a} \, \mathsf{c} \; \left(\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c} \right) \left(\mathsf{b} + \sqrt{\mathsf{b}^2 - 4 \, \mathsf{a} \, \mathsf{c}} \right) \mathsf{n} \right) \right) \right) \\ \mathsf{D} \mathsf{A} \; \mathsf{C} \;$$

Result (type 5, 5439 leaves):

$$\begin{split} & \frac{\left(-A\,b^2\,c + a\,b\,B\,c + 2\,a\,A\,c^2 - 2\,a^2\,c\,C + a^2\,b\,D + A\,b^2\,c\,n - 4\,a\,A\,c^2\,n\right)\,x}{a^2\,c\,\left(-b^2 + 4\,a\,c\right)\,n} \\ & \frac{\left(A\,b^2\,c - a\,b\,B\,c - 2\,a\,A\,c^2 + 2\,a^2\,c\,C - a^2\,b\,D - A\,b^2\,c\,n + 4\,a\,A\,c^2\,n\right)\,x}{a^2\,c\,\left(-b^2 + 4\,a\,c\right)\,n} \\ & \frac{a^2\,c\,\left(-b^2 + 4\,a\,c\right)\,n}{\left(x\,\left(A\,b^2\,c - a\,b\,B\,c - 2\,a\,A\,c^2 + 2\,a^2\,c\,C - a^2\,b\,D + A\,b\,c^2\,x^n - 2\,a\,B\,c^2\,x^n + a\,b\,c\,C\,x^n - a\,b^2\,D\,x^n + 2\,a^2\,c\,D\,x^n\right)\right)\,/\,\left(a\,c\,\left(-b^2 + 4\,a\,c\right)\,n\,\left(a + b\,x^n + c\,x^{2n}\right)\right) - \frac{1}{a\,\left(-b^2 + 4\,a\,c\right)}\,A\,b\,c\,x^{1+n}\,\left(x^n\right)^{\frac{1}{n}\,\frac{1-n}{n}} \left(-\frac{1}{\sqrt{b^2 - 4\,a\,c}}\,\left(\frac{x^n}{-\frac{b-\sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n\right)\right)^{-\frac{1/n}{n}} \right. \\ & + \frac{1}{\sqrt{b^2 - 4\,a\,c}}\,\left(\frac{x^n}{-\frac{b-\sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n\right) + \frac{1}{\sqrt{b^2 - 4\,a\,c}}\,\left(\frac{x^n}{-\frac{b-\sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n\right)}\right) + \frac{1}{\sqrt{b^2 - 4\,a\,c}}\,\left(\frac{x^n}{-\frac{b-\sqrt{b^2 - 4\,a\,c}}{2\,c}} + x^n\right)}\right)$$

Hypergeometric2F1 $\left[-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left[-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right]} \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\,\right] \\ +\frac{1}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{1}{2\,c\left(-\frac{$$

$$\frac{1}{-\,b^2\,+\,4\,\,a\,\,c} 2\,\,a\,\,D\,\,x^{1+n}\,\,\left(x^n\,\right)^{\frac{1}{n}-\frac{1+n}{n}} \left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a\,\,c}} \left(\frac{x^n}{-\,\frac{-b-\sqrt{\,b^2\,-\,4\,\,a\,\,c}}{2\,\,c}} + x^n\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1} \Big[-\frac{1}{n} \text{, } -\frac{1}{n} \text{, } \frac{-1+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \, \Big] \, + \, \frac{1}{\sqrt{b^2-4\,a\,c}} + \frac{1}{\sqrt{b$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}}+x^{n}\right)^{-1/n} \text{ Hypergeometric2F1}\Big[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}}+x^{n}\right)}\Big]\right) + \frac{1}{2}\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)$$

$$\frac{1}{a\,\left(-\,b^2\,+\,4\,a\,c\,\right)\,n}A\,b\,c\,\,x^{1+n}\,\left(x^n\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a\,c\,}}\left(\frac{x^n}{-\,\frac{-b-\sqrt{\,b^2-4\,a\,c\,}}{2\,c\,}}+x^n\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1} \left[-\frac{1}{n} \text{, } -\frac{1}{n} \text{, } \frac{-1+n}{n} \text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\, \left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c} + x^n \right)} \right] + \frac{1}{\sqrt{b^2-4\,a\,c}}$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right] \\ -\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ -\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)} \\ -\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2$$

$$\frac{1}{\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n} 2\,\,B\,\,c\,\,x^{1+n}\,\,\left(x^n\,\right)^{\frac{1}{n}-\frac{1+n}{n}} \left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a\,\,c\,}} \left(\,\frac{x^n}{-\,\frac{-b-\sqrt{\,b^2\,-\,4\,a\,\,c\,}}{2\,\,c\,}} + x^n\,\right)^{-1/n} \right)^{-1/n} \left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a\,\,c\,}} + x^n\,\right)^{-1/n} \left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,a$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \,+\, \frac{1}{\sqrt{b^2-4\,a\,c}} + \frac{1}{\sqrt{b^2-4\,a\,c}} +$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \\ \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\right] \\ +\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2$$

$$\frac{1}{\left(-\,b^2\,+\,4\;a\;c\,\right)\;n}b\;C\;x^{1+n}\;\left(x^n\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\;a\;c\,}}\left(\frac{x^n}{-\,\frac{-\,b-\sqrt{\,b^2-4\;a\;c\,}}{2\;c\,}}\,+\,x^n\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)} \Big] + \frac{1}{\sqrt{b^2-4\,a\,c}} \\$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \text{ Hypergeometric2F1}\Big[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\Big]\right) + \frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}$$

$$\frac{1}{\left(-\,b^2\,+\,4\,\,a\,\,c\,\right)\,\,n}\,2\,\,a\,\,D\,\,x^{1+n}\,\,\left(\,x^n\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^2\,-\,4\,\,a\,\,c\,}}\left(\,\frac{x^n}{-\,\frac{-b-\sqrt{\,b^2\,-\,4\,\,a\,\,c\,}}{2\,\,c\,}}\,+\,x^n\,\right)^{-1/n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \,+\, \frac{1}{\sqrt{b^2-4\,a\,c}} + \frac{1}{\sqrt{b^2-4\,a\,c}} +$$

$$\left(\frac{x^{n}}{-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}}\right)^{-1/n} \text{Hypergeometric2F1}\Big[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}\Big]\right] - \frac{1}{2\,c\,\left(-\frac{-b+\sqrt{b^{2}-4\,a\,c}}{2\,c}+x^{n}\right)}$$

$$\frac{1}{c\,\left(-\,b^{2}\,+\,4\,a\,c\,\right)\,n}b^{2}\,D\,x^{1+n}\,\left(x^{n}\,\right)^{\frac{1}{n}-\frac{1+n}{n}}\left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(\frac{x^{n}}{-\,\frac{-\,b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-1/n}\right) \\ + \left(-\,\frac{1}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}\left(-\,\frac{x^{n}}{-\,\frac{-\,b-\sqrt{\,b^{2}\,-\,4\,a\,c\,}}{2\,c\,}}+x^{n}\right)^{-1/n}\right) \\ + \left(-\,\frac{x^{n}}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}+x^{n}\right)^{-1/n}}{2\,c\,} \\ + \left(-\,\frac{x^{n}}{\sqrt{\,b^{2}\,-\,4\,a\,c\,}}+x^{n}\right)^{-1/n}$$

$$-\frac{1}{n}, -\frac{1}{n}, \frac{-1+n}{n}, -\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\right] + \frac{1}{\sqrt{b^2-4\,a\,c}} \left(\frac{x^n}{-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n}$$

$$\text{Hypergeometric2F1}\Big[-\frac{1}{n}\text{, } -\frac{1}{n}\text{, } -\frac{1+n}{n}\text{, } -\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c\,\left(-\frac{-b+\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)}\,\Big] \right] + \frac{1}{a\,\left(-\,b^2+4\,a\,c\right)} A\,b^2\,x \\ + \frac{1$$

$$\left(\left[1-\left(\frac{x^n}{-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n}\right)^{-1/n} \right. \\ \left. \text{Hypergeometric2F1}\left[-\frac{1}{n},-\frac{1}{n},\frac{-1+n}{n},-\frac{-b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right)\right]\right) \\ \left. -\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right) \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ \left. -\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right) \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ \left. -\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right) \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,c}+x^n\right] \\ = \left[-\frac{b-\sqrt{b^2-4\,a\,c}}{2\,$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \\ \left[1 - \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right. \\ \left. \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{-b^2 + 4 \, a \, c} \right. \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{-b^2 + 4 \, a \, c} \right. \\ \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right) \right] \right/ \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \\ \left. \left(\frac{x^n}{-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right) n} Ab^2 x \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{a \, \left(-b^2 + 4 \, a \, c \right) n} Ab^2 x \\ \left. \left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right) \right] \right/ \left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right] - \frac{1}{n} - \frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \, c} + x^n \right)} \right] \right/$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} \, b \, B \, X \right]$$

$$\left[\left(1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)^{-1/n} \, Hypergeometric 2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)} \right] \right]$$

$$\left[\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \left(\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right)} \right] \right]$$

$$\left[\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{\left(-b^2 + 4 \, a \, c \right) \, n} \, 2A \, c \, X \right]$$

$$\left[\left(1 - \left(\frac{x^n}{-\frac{b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c}} + x^n \right) + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) + \frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right] + \frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2} \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2 \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2} \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} \right)^2 \right]$$

$$\left[\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) +$$

$$\left(1 - \left(\frac{x^n}{-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right)$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, \frac{-1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b + \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b + \sqrt{b^2 - 4 \, a \, c} \right)^2}{2 \, c} \right) \right) + \frac{1}{c \left(-b^2 + 4 \, a \, c \right) \, n} \, a \, b \, D \, x$$

$$\left(\left[1 - \left(\frac{x^n}{-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n} \right)^{-1/n} \right]$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b - \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right] \right)$$

$$\left(\frac{b \left(-b - \sqrt{b^2 - 4 \, a \, c} \right)}{2 \, c} + \frac{\left(-b - \sqrt{b^2 - 4 \, a \, c}} \right)^2}{2 \, c} \right) +$$

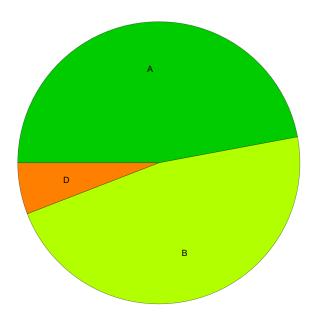
$$\left(1 - \left(\frac{x^n}{-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)^{-1/n} \right)$$

$$Hypergeometric2F1 \left[-\frac{1}{n}, -\frac{1}{n}, -\frac{1 + n}{n}, -\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c \left(-\frac{-b + \sqrt{b^2 - 4 \, a \, c}}{2 \, c} + x^n \right)} \right) \right)$$

 $\left(\frac{b \left(-b + \sqrt{b^2 - 4 a c} \right)}{2 c} + \frac{\left(-b + \sqrt{b^2 - 4 a c} \right)^2}{2 c} \right)$

Summary of Integration Test Results

17 integration problems



- A 8 optimal antiderivatives
- B 8 more than twice size of optimal antiderivatives
- C 0 unnecessarily complex antiderivatives
- D 1 unable to integrate problems
- E 0 integration timeouts