

$$\begin{aligned}
& -40 \\
& T_{r+1} = \\
& (-1)^r 2^{5-r}. \\
& C_5^r x^{\frac{5r-5}{2}} \frac{5r-5}{2} = \\
& 5x^5 x^5 \\
& \left(\frac{2}{\sqrt{x}} - x^2\right)^5 T_{r+1} = \\
& (-1)^r 2^{5-r}. \\
& C_5^r x^{\frac{5r-5}{2}} \\
& \frac{5r-5}{2} = \\
& 5r = \\
& 3 \\
& x^5 T_{3+1} = \\
& (-1)^3 2^{5-3}. \\
& C_5^3 x^5 = \\
& -40x^5 \\
& x^5 - 40 \\
& \left(2x - \frac{1}{x}\right)^5 T_{r+1} = C_5^r 2^{5-r} (-1)^r x^{5-2r} \\
& \left(2x - \frac{1}{x}\right)^5 T_{r+1} = C_5^r 2^{5-r} (-1)^r x^{5-2r} \\
& \left(x + \frac{1}{x}\right) \left(2x - \frac{1}{x}\right)^5 C_5^2 2^3 C_5^3 2^2 \\
& \pm \sqrt{2} \\
& \left(\frac{x}{2} + \frac{a}{\sqrt{x}}\right)^6 \\
& T_{r+1} = C_6^r \times \\
& 2^{-6+r} \times \\
& a^r \times \\
& x^{6-\frac{3}{2}r} \\
& (x - \\
& 1) - 16 - \\
& \frac{3}{2}r = \\
& 0(x - \\
& 1)x6 - \\
& \frac{3}{2}r = \\
& -1r \\
& \left(\frac{x}{2} + \frac{a}{\sqrt{x}}\right)^6 T_{r+1} = \\
& C_6^r \times \left(\frac{x}{2}\right)^{6-r} \times \\
& \left(\frac{a}{\sqrt{x}}\right)^r = \\
& C_6^r \times \\
& 2^{-6+r} \times \\
& a^r \times \\
& x^{6-\frac{3}{2}r} \\
& (x - \\
& 1) - 16 - \\
& \frac{3}{2}r = \\
& 0(x - \\
& 1)x6 - \\
& \frac{3}{2}r = \\
& -1 \\
& r = \\
& 4r = \\
& 14 \\
& r^3 = \\
& 4 \\
& (x - \\
& 1). \\
& \left(\frac{x}{2} + \frac{a}{\sqrt{x}}\right)^6 15 \\
& C_6^4 \times \\
& 2^{-6+4} \times \\
& a^4 = \\
& 15 = \\
& \pm \sqrt{2} \\
& \pm \sqrt{2} \\
& x0r \\
& \left(x + \frac{1}{x} + 2\right)^4 = \\
& \frac{(x+1)^{8^x}}{x^4} \\
& T_{r+1} = \\
& C_8^r. \\
& \frac{x^{8-r}}{x^4} = \\
& C_8^r. \\
& x^{4-r} \\
& 4 - \\
& 0r = \\
& 4C_8^4 = \\
& 70
\end{aligned}$$