

$$\begin{aligned} & \text{[> } x^3 / ((1-x) * (1-x^2) * (1-x^3)); \\ & \qquad \qquad \qquad \frac{x^3}{(1-x) (-x^2+1) (-x^3+1)} \qquad \qquad \qquad \text{(1)} \\ & \text{[> series(%,x=0,20);} \\ & x^3 + x^4 + 2x^5 + 3x^6 + 4x^7 + 5x^8 + 7x^9 + 8x^{10} + 10x^{11} + 12x^{12} + 14x^{13} + 16x^{14} + 19x^{15} \\ & \quad + 21x^{16} + 24x^{17} + 27x^{18} + 30x^{19} + O(x^{20}) \qquad \qquad \qquad \text{(2)} \\ & \text{[> product(1-x^k,k=1..20);} \\ & (1-x) (-x^2+1) (-x^3+1) (-x^4+1) (-x^5+1) (-x^6+1) (-x^7+1) (-x^8+1) (-x^9 \\ & \quad +1) (-x^{10}+1) (-x^{11}+1) (-x^{12}+1) (-x^{13}+1) (-x^{14}+1) (-x^{15}+1) (-x^{16} \\ & \quad +1) (-x^{17}+1) (-x^{18}+1) (-x^{19}+1) (-x^{20}+1) \qquad \qquad \qquad \text{(3)} \\ & \text{[> series(%,x=0,20);} \\ & \qquad \qquad \qquad 1 - x - x^2 + x^5 + x^7 - x^{12} - x^{15} + O(x^{20}) \qquad \qquad \qquad \text{(4)} \end{aligned}$$