! For an efficient use of these tables, first read `HowTo.pdf`.

T1.08. Integrand involving $a + bx^k \equiv X_k$.

1. $$\int \frac{dx}{x\,X_n} = \frac{1}{an} \ln \frac{x^n}{X_n}, \quad n \neq 0.$$
2. $$\int \frac{dx}{x\,X_n^{m+1}} = \frac{1}{a} \int \frac{dx}{X_n^m} - \frac{b}{a} \int \frac{x^n\,dx}{X_n^{m+1}}.$$
3. $$\int \frac{dx}{x^m\,X_n^{p+1}} = \frac{1}{a} \int \frac{dx}{x^m\,X_n^p} - \frac{b}{a} \int \frac{dx}{x^{m-n} X_n^{p+1}}.$$

Reduction Formulas:

4. $$\int x^n X_k^m\,dx = \frac{x^{n+1} X_k^m}{km+n+1} + \frac{amk}{km+n+1} \int x^n\,X_k^{m-1}\,dx$$
$$= \frac{x^{n+1}}{m+1} \sum_{s=0}^{p} \frac{(ak)^s (m+1)m(m-1)\ldots(m-s+1)\,X_k^{m-s}}{[mk+n+1][(m-1)k+n+1]\ldots[(m-s)k+n+1]}$$
$$+ \frac{(ak)^{p+1} m(m-1)\ldots(m-p+1)(m-p)}{[mk+n+1][(m-1)k+n+1]\ldots[(m-p)k+n+1]} \int x^n\,X_k^{m-p-1}\,dx.$$
5. $$\int x^n\,X_k^m\,dx = \frac{-x^{n+1}\,X_k^{m+1}}{ak(m+1)} + \frac{km+k+n+1}{ak(m+1)} \int x^n\,X_k^{m+1}\,dx.$$
6. $$\int x^n\,X_k^m\,dx = \frac{x^{n+1}\,X_k^m}{n+1} - \frac{bkm}{n+1} \int x^{n+k}\,X_k^{m-1}\,dx.$$
7. $$\int x^n\,X_k^m\,dx = \frac{x^{n+1-k}\,X_k^{m+1}}{bk(m+1)} - \frac{n+1-k}{bk(m+1)} \int x^{n-k}\,X_k^{m+1}\,dx.$$
8. $$\int x^n\,X_k^m\,dx = \frac{x^{n+1-k}\,X_k^{m+1}}{b(km+n+1)} - \frac{a(n+1-k)}{b(km+n+1)} \int x^{n-k}\,X_k^m\,dx.$$
9. $$\int x^n\,X_k^m\,dx = \frac{x^{n+1}\,X_k^{m+1}}{a(n+1)} - \frac{b(km+k+n+1)}{a(n+1)} \int x^{n+k}\,X_k^m\,dx.$$

10. $$\int x^c\, X_k^m\, dx = \frac{b^m}{k} \sum_{j=0}^{m} \frac{(-1)^j m!\, \Gamma\!\left(\dfrac{c+1}{k}\right) \left(b^k + a/b\right)^{m-j}}{(m-j)!\, \Gamma\!\left(\dfrac{c+1}{k} + j + 1\right)}\, x^{c+1+jk}, \quad c, k, m \geq 0 \text{ integers.}$$