1922. $\displaystyle\int \frac{dx}{(x+a)^m (x+b)^n} = \frac{1}{b-a}\int \frac{(x+b)^2\, dt}{(x+a)^m (x+b)^n} = \frac{1}{b-a}\int \frac{dt}{t^m (x+b)^{m+n-2}} =$

$t = \dfrac{x+a}{x+b}$. $\quad \dfrac{x+a}{x+b} = 1 + \dfrac{a-b}{x+b}$. $\quad dt = -\dfrac{a-b}{(x+b)^2}\,dx$;

т.е. $\boxed{1 - t = \dfrac{b-a}{x+b}}$

$$= \frac{1}{b-a}\int \frac{(b-a)^{m+n-2}}{(b-a)^{m+n-2}} \cdot \frac{dt}{t^m (x+b)^{m+n-2}} = \frac{1}{(b-a)^{m+n-1}} \int \frac{(1-t)^{m+n-2}}{t^m}\,dt =$$

$$= \frac{1}{(b-a)^{m+n-1}} \int \frac{dt}{t^m} \sum_{k=0}^{m+n-2} C^k_{m+n-2} (-t)^k = \frac{1}{(b-a)^{m+n-1}} \sum_{k=0}^{m+n-2} C^k_{m+n-2} \int (-t)^{k-m}\,dt.$$

$$\int \frac{dx}{(x-2)^2 (x+3)^3} = \frac{1}{(-3-2)^{2+3-1}} \sum_{k=0}^{3} C_3^k \int (-t)^{k-2}\,dt =$$

$$= \frac{1}{625}\left(\int \frac{dt}{t^2} - 3\int \frac{dt}{t} + 3\int dt - \int t\,dt\right) = \frac{1}{625}\left(-\frac{1}{t} - 3\ln t + 3t - \frac{t^2}{2}\right) + C$$

где $t = \dfrac{x-2}{x+3}$.