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

T3.13A. Integrands of the form $\dfrac{1}{x^4\sqrt{(a^2 \pm x^2)\,(b^2 \pm x^2)}}$ on the interval (y, ∞).

Notation used: $\beta = \arctan\dfrac{a}{y}$, $\xi = \arcsin\sqrt{\dfrac{a^2+b^2}{a^2+y^2}}$, $\nu = \arcsin\dfrac{a}{y}$,

$$q = \frac{\sqrt{a^2-b^2}}{a}, \quad s = \frac{a}{\sqrt{a^2+b^2}}, \quad t = \frac{b}{a}.$$

1. $$\int_y^\infty \frac{dx}{x^4\sqrt{(x^2+a^2)(x^2+b^2)}} = \frac{1}{3a^3b^4}\{2(a^2+b^2)E(\beta,\, q) - b^2F(\beta,\, q)\} + \frac{a^2b^2 - y^2(2a^2+b^2)}{3a^2b^4y^3}, \quad a > b,\, y > 0.$$

2. $$\int_y^\infty \frac{dx}{x^4\sqrt{(x^2+a^2)(x^2-b^2)}} = \frac{1}{3a^4b^4\sqrt{a^2+b^2}}\{2(a^4-b^4)E(\xi,\, s) + b^2(2b^2-a^2)F(\xi,\, s)\} - \frac{a^2b^2 + y^2(2a^2-b^2)}{3a^2b^4y^3}\sqrt{\frac{y^2-b^2}{y^2+a^2}}, \quad y \geq b > 0.$$

3. $$\int_y^\infty \frac{dx}{x^4\sqrt{(x^2-a^2)(x^2-b^2)}} = \frac{1}{3a^3b^4}\left\{(2a^2+b^2)F(\nu,\, t) - 2(a^2+b^2)E(\nu,\, t) + \frac{ab^2}{y^3}\sqrt{(y^2-a^2)(y^2-b^2)}\right\}, \quad y \geq a > b > 0.$$