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

T2.13A. Integrands of the form $\dfrac{x^n}{\sqrt{(a^2 \pm x^2)\,(b^2 \pm x^2)}}$, $n = 0, 2, 4$, on the intervals (y, a) and (a, y).

Notation used: $\lambda = \arcsin\sqrt{\dfrac{a^2 - y^2}{a^2 - b^2}}$, $\mu = \arcsin\sqrt{\dfrac{y^2 - a^2}{y^2 - b^2}}$,

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

1. $$\int_y^a \frac{dx}{\sqrt{(a^2 - x^2)(x^2 - b^2)}} = \frac{1}{a} F(\lambda,\, q), \quad a > y \geq b > 0.$$

2. $$\int_a^y \frac{dx}{\sqrt{(x^2 - a^2)(x^2 - b^2)}} = \frac{1}{a} F(\mu,\, t), \quad y > a > b > 0.$$

3. $$\int_y^a \frac{x^2\, dx}{\sqrt{(a^2 - x^2)(x^2 - b^2)}} = aE(\lambda,\, q), \quad a > y \geq b > 0.$$

4. $$\int_a^y \frac{x^2\, dx}{\sqrt{(x^2 - a^2)(x^2 - b^2)}} = a\{F(\mu,\, t) - E(\mu,\, t)\} + y\sqrt{\frac{y^2 - a^2}{y^2 - b^2}}, \quad y > a > b > 0.$$

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

$$6.\ \int_a^y \frac{x^4\,dx}{\sqrt{(x^2-a^2)(x^2-b^2)}} = \frac{a}{3}\{(2a^2+b^2)F(\mu,\,t) - 2(a^2+b^2)E(\mu,\,t)\} + \frac{y}{3}(y^2+2a^2+b^2)\sqrt{\frac{y^2-a^2}{y^2-b^2}}, \quad y>a>b>0.$$