

! For an efficient use of these tables, first read [HowTo.pdf](#).

**T2.14A.** Integrands of the form  $\sqrt{(a^2 \pm x^2)(x^2 \pm b^2)}$  and  $\sqrt{(a^2 \pm x^2)(x^2 \pm b^2)}$  on the intervals  $(y, a)$  and  $(a, y)$ .

Notation used:  $\lambda = \arcsin \sqrt{\frac{a^2 - y^2}{a^2 - b^2}}, \quad \mu = \arcsin \sqrt{\frac{y^2 - a^2}{y^2 - b^2}}, \quad q = \frac{\sqrt{a^2 - b^2}}{a}, \quad t = \frac{b}{a}.$

$$\begin{aligned}
 1. \int_y^a \sqrt{(a^2 - x^2)(x^2 - b^2)} \, dx &= \frac{a}{3} \{ (a^2 + b^2)E(\lambda, q) - 2b^2F(\lambda, q) \} \\
 &\quad - \frac{y}{3} \sqrt{(a^2 - y^2)(y^2 - b^2)}, \quad a > y \geq b > 0. \\
 2. \int_a^y \sqrt{(x^2 - a^2)(x^2 - b^2)} \, dx &= \frac{a}{3} \{ (a^2 + b^2)E(\mu, t) - (a^2 - b^2)F(\mu, t) \} \\
 &\quad + \frac{y}{3} (y^2 - a^2 - 2b^2) \sqrt{\frac{y^2 - a^2}{y^2 - b^2}}, \quad y > a > b > 0.
 \end{aligned}$$