

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

T2.25A. Integrands of the form $\sqrt{\frac{x^2 + a^2}{x^2 \pm b^2}}$ and $\sqrt{\frac{b^2 - x^2}{a^2 \pm x^2}}$ on the intervals (y, a) and (a, y) .

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

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

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

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

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