

**FORMULA 2.314**

$$\int \frac{dx}{ae^{mx} + be^{-mx}} = \begin{cases} \frac{1}{m\sqrt{ab}} \tan^{-1}(e^{mx} \sqrt{a/b}) & \text{if } ab > 0 \\ \frac{1}{2m\sqrt{-ab}} \ln \left( \frac{b+e^{mx}\sqrt{-ab}}{b-e^{mx}\sqrt{-ab}} \right) & \text{if } ab < 0 \end{cases}$$

Let  $t = e^{mx}$  and with the notation  $r = b/a$

$$\int \frac{dx}{ae^{mx} + be^{-mx}} = \frac{r}{mb} \int \frac{dt}{t^2 + r}$$

The calculation is now elementary.