Expressão	Substituição
$f(x) = R(x^{\frac{m}{n}}, x^{\frac{p}{q}}, \ldots, x^{\frac{r}{s}})$	$x = t^{\mu}$ $\mu =$ m.m.c.$\{n, q, \ldots, s\}$
$f(x) = R\left(x, \left(\frac{a\,x+b}{c\,x+d}\right)^{\frac{m}{n}}, \left(\frac{a\,x+b}{c\,x+d}\right)^{\frac{p}{q}}, \ldots, \left(\frac{a\,x+b}{c\,x+d}\right)^{\frac{r}{s}}\right)$	$\frac{a\,x+b}{c\,x+d} = t^{\mu}$ $\mu =$ m.m.c.$\{n, q, \ldots, s\}$
$f(x) = x^{\alpha}\,(a + b\,x^{\beta})^{\gamma}$	$x^{\beta} = t$

Expressão	Substituição
$f(x) = R(x, \sqrt{a\,x^2 + b\,x + c})$	$\sqrt{a\,x^2 + b\,x + c} = \sqrt{a}\,x + t$ se $a > 0$
	$\sqrt{a\,x^2 + b\,x + c} = t\,x + \sqrt{c}$ se $c > 0$
	$\sqrt{a\,x^2 + b\,x + c} = t\,(x - \alpha)$ ou $\sqrt{a\,x^2 + b\,x + c} = t\,(x - \beta)$ se α e β são zeros reais distintos de $a\,x^2 + b\,x + c$

Expressão	Substituição
$\sqrt{a^2 - x^2}$	$x = a\,\cos(t)$ ou $x = a\,\mathrm{sen}(t)$
$\sqrt{x^2 - a^2}$	$x = a\,\sec(t)$ ou $x = a\,\mathrm{cosec}(t)$
$\sqrt{x^2 + a^2}$	$x = a\,\mathrm{tg}(t)$ ou $x = a\,\mathrm{cotg}(t)$

Expressão	Substituição
$f(x) = R(\mathrm{sen}(x), \cos(x))$	$\mathrm{tg}(\frac{x}{2}) = t$
$f(x) = R(\mathrm{sen}(x), \cos(x))$ $R(-y,-z) = R(y,z), \ \forall y, z$	$\mathrm{tg}(x) = t$
$f(x) = R(e^x)$	$e^x = t$

$$\mathrm{tg}\left(\frac{x}{2}\right) = t \Rightarrow x = 2\,\mathrm{arctg}(t) = \varphi(t) \Rightarrow \varphi'(t) = \frac{2}{1+t^2},$$

$$\begin{aligned}
\cos(x) &= \cos^2\left(\frac{x}{2}\right) - \mathrm{sen}^2\left(\frac{x}{2}\right) = \frac{1}{1+\mathrm{tg}^2\left(\frac{x}{2}\right)} - \frac{\mathrm{tg}^2\left(\frac{x}{2}\right)}{1+\mathrm{tg}^2\left(\frac{x}{2}\right)} \\
&= \frac{1-\mathrm{tg}^2\left(\frac{x}{2}\right)}{1+\mathrm{tg}^2\left(\frac{x}{2}\right)} = \frac{1-t^2}{1+t^2}
\end{aligned}$$

$$\begin{aligned}
\mathrm{sen}(x) &= 2\,\mathrm{sen}\left(\frac{x}{2}\right).\cos\left(\frac{x}{2}\right) = 2\,\frac{\mathrm{tg}\left(\frac{x}{2}\right)}{\sqrt{1+\mathrm{tg}^2\left(\frac{x}{2}\right)}} \cdot \frac{1}{\sqrt{1+\mathrm{tg}^2\left(\frac{x}{2}\right)}} \\
&= 2\,\frac{\mathrm{tg}\left(\frac{x}{2}\right)}{1+\mathrm{tg}^2\left(\frac{x}{2}\right)} = \frac{2t}{1+t^2}
\end{aligned}$$

$$\varphi(t) = \mathrm{arctg}(t)$$

$$\mathrm{sen}(x) = \frac{t}{\sqrt{1+t^2}} \quad \text{e} \quad \cos(x) = \frac{1}{\sqrt{1+t^2}}.$$