Tabla de integrales inmediatas	
Función	Primitiva
$[f(x)]^m\, f'(x),\ m \neq 1$	$\dfrac{[f(x)]^{m+1}}{m+1}$
$a^{f(x)}\, f'(x)$	$\dfrac{a^{f(x)}}{\ln(a)}$
$\cos[f(x)]\, f'(x)$	$\operatorname{sen}[f(x)]$
$\operatorname{cotg}[f(x)]\, f'(x)$	$\ln\lvert\operatorname{sen}[f(x)]\rvert$
$\dfrac{f'(x)}{\operatorname{sen}^2[f(x)]}$	$-\operatorname{cotg}[f(x)]$
$\dfrac{f'(x)}{1+[f'(x)]^2}$	$-\operatorname{arctg}[f(x)]$
$\dfrac{f'(x)}{f(x)}$	$\ln\lvert f(x)\rvert$
$\operatorname{sen}[f(x)]\, f'(x)$	$-\cos[f(x)]$
$\operatorname{tg}[f(x)]\, f'(x)$	$-\ln\lvert\cos[f(x)]\rvert$
$\dfrac{f'(x)}{\cos^2[f(x)]}$	$\operatorname{tg}[f(x)]$
$\dfrac{f'(x)}{\sqrt{1-[f(x)]^2}}$	$\operatorname{arcsen}[f(x)]$

Integrales trigonométricas

Cambio universal:
$t = \operatorname{tg}\left(\dfrac{x}{2}\right)$, $\mathrm{d}x = \dfrac{2}{1+t^2}\ \mathrm{d}t$, $\operatorname{sen}(x) = \dfrac{2t}{1+t^2}$, $\cos(x) = \dfrac{1-t^2}{1+t^2}$

$\int R[\operatorname{sen}(x)]\cos(x)\ \mathrm{d}x$; $t = \operatorname{sen}(x)$, $\mathrm{d}t = \cos(x)\ \mathrm{d}x$

$\int R[\cos(x)]\operatorname{sen}(x)\ \mathrm{d}x$; $t = \cos(x)$, $\mathrm{d}t = -\operatorname{sen}(x)\ \mathrm{d}x$

$\int R(\operatorname{tg}(x))\ \mathrm{d}x$; $t = \operatorname{tg}(x)$, $x = \operatorname{arctg}(t)$, $\mathrm{d}x = \dfrac{dt}{1+t^2}$

$\int R(\operatorname{sen}(x), \cos(x))\ \mathrm{d}x$

con $R(\cos(x), \operatorname{sen}(x)) = \operatorname{sen}^m(x)\cdot\cos^n(x)$

(a) si algún exponente es impar, se realiza el cambio $t =$ la otra función

(b) si m, n son pares no negativos:
$\operatorname{sen}^2(x) = \dfrac{1-\cos(2x)}{2}$, $\cos^2(x) = \dfrac{1+\cos(2x)}{2}$

(c) si m, n son pares y alguno es negativo:
$t = \operatorname{tg}(x)$, $\mathrm{d}x = \dfrac{1}{1+t^2}\ \mathrm{d}t$, $\operatorname{sen}^2(x) = \dfrac{t^2}{1+t^2}\ \mathrm{d}t$,
$\cos^2(x) = \dfrac{1}{1+t^2}\ \mathrm{d}t$

$\int \cos(px)\cdot\cos(qx)\ \mathrm{d}x$, $\int \operatorname{sen}(px)\cdot\operatorname{sen}(qx)\ \mathrm{d}x$,
$\int \operatorname{sen}(px)\cdot\cos(qx)\ \mathrm{d}x$

$$\cos(px)\cdot\cos(qx) = \frac{\cos[(p+q)x]+\cos[(p-q)x]}{2}$$

$$\operatorname{sen}(px)\cdot\operatorname{sen}(qx) = \frac{-\cos[(p+q)x]+\cos[(p-q)x]}{2}$$

$$\operatorname{sen}(px)\cdot\operatorname{sen}(qx) = \frac{\operatorname{sen}[(p+q)x]+\operatorname{sen}[(p-q)x]}{2}$$

Integrales racionales: $\int \dfrac{P(x)}{Q(x)}\ \mathrm{d}x$ se factoriza $Q(x)$ y se escribe $\dfrac{P(x)}{Q(x)}$ como suma de fracciones simples.

$$\int \frac{1}{x-a}\ \mathrm{d}x = \ln|x-a|$$

$$\int \frac{1}{(x-a)^p}\ \mathrm{d}x = \frac{(x-a)^{-p+1}}{-p+1},\ p \neq 1$$

$$\int \frac{Mx+N}{(x-a)^2+b^2}\ \mathrm{d}x = \frac{M}{2}|\ln|(x-a)^2+b^2| + \frac{N+Ma}{b}\operatorname{arctg}\left(\frac{x-a}{b}\right)$$

Método de Hermite: $\int \dfrac{P(x)}{Q(x)}\ \mathrm{d}x = \dfrac{Y(x)}{F(x)} + \int \dfrac{X(x)}{G(x)}\ \mathrm{d}x$

Siendo $F(x) = M.C.D.(Q(x), Q'(x))$, $G(x) = \dfrac{Q(x)}{F(x)}$

$Y(x)$ polinomio a determinar con grado(Y) <grado(F)

$X(x)$ polinomio a determinar con grado(X) <grado(G)

Integrales irracionales

$$\int R\left(x, \left(\frac{ax+b}{cx+d}\right)^{m/n}, ..., \left(\frac{ax+b}{cx+d}\right)^{r/s}\right)\ \mathrm{d}x$$

con $t^k = \dfrac{ax+b}{cx+d}$, $k = m.c.m.\{n, ..., s\}$

$\int R\left(x, \sqrt{x^2+a^2}\right)\ \mathrm{d}x$	$x = a\ \operatorname{tg}(t)$, $\sqrt{x^2+a^2} = \dfrac{a}{\cos(t)}$, $\mathrm{d}x = \dfrac{a}{\cos^2(t)}\ \mathrm{d}t$
	$x = a\ \operatorname{cotg}(t)$, $\sqrt{x^2+a^2} = \dfrac{a}{\operatorname{sen}(t)}$ $\mathrm{d}x = \dfrac{-a}{\operatorname{sen}^2(t)}\ \mathrm{d}t$
$\int R\left(x, \sqrt{x^2-a^2}\right)\ \mathrm{d}x$	$x = a\ \sec(t)$, $\sqrt{x^2-a^2} = a\operatorname{tg}(t)$, $\mathrm{d}x = a\operatorname{tg}(t)\sec(\mathrm{t})\,\mathrm{d}t$
	$x = a\ \operatorname{cosec}(t)$, $\sqrt{x^2-a^2} = a\operatorname{cotg}(t)$, $\mathrm{d}x = -a\operatorname{cotg}(t)\operatorname{cosec}(t)\,\mathrm{d}t$
$\int R\left(x, \sqrt{a^2-x^2}\ \mathrm{d}x\right)\ \mathrm{d}x$	$x = a\ \operatorname{sen}(t)$, $\sqrt{a^2-x^2} = a\ \cos(t)$, $\mathrm{d}x = a\cos(t)\,\mathrm{d}t$
	$x = a\ \cos(t)$, $\sqrt{a^2-x^2} = a\ \operatorname{sen}(t)$, $\mathrm{d}x = -a\operatorname{sen}(t)\,\mathrm{d}t$

$$\int R\left(x, \sqrt{x^2+bx+c}\right)\ \mathrm{d}x$$

$a > 0$; $\sqrt{x^2+bx+c} = \sqrt{a}x + t$, $x = \dfrac{t^2-c}{b-2\sqrt{a}t}$

$c > 0$; $\sqrt{x^2+bx+c} = xt + \sqrt{c}$, $x = \dfrac{2t\sqrt{c}-b}{a-t^2}$

si $a < 0$ y α es una raíz de ax^2+bx+c se realiza el cambio:
$\sqrt{x^2+bx+c} = (x-\alpha)t$

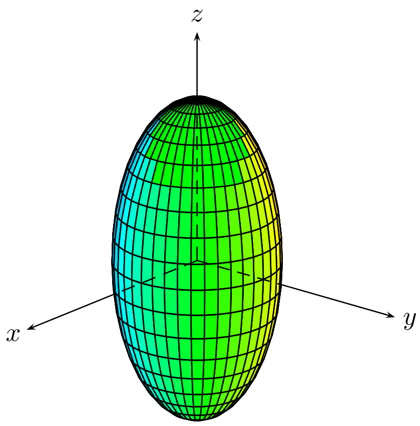

Figura 1: Elipsoide $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$

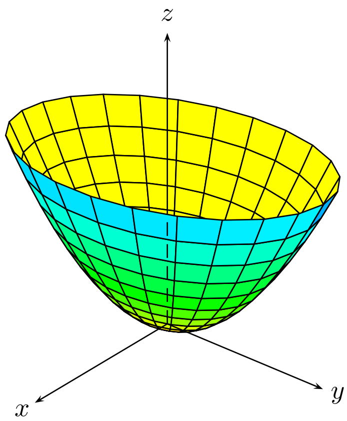

Figura 2: Paraboloide elíptico $\frac{x^2}{a^2} + \frac{y^2}{b^2} = z$

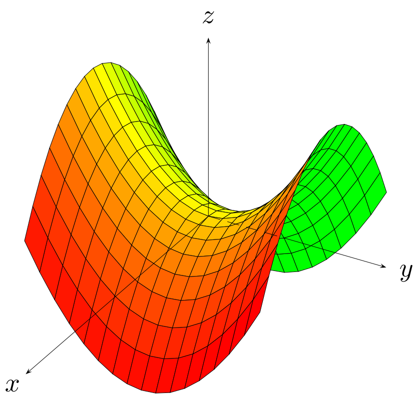

Figura 3: Paraboloide hiperbólico $\frac{x^2}{a^2} - \frac{y^2}{b^2} = z$

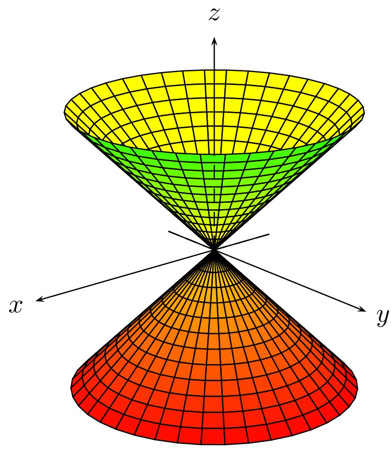

Figura 4: Cono elíptico $\frac{x^2}{a^2} + \frac{y^2}{b^2} = z^2$

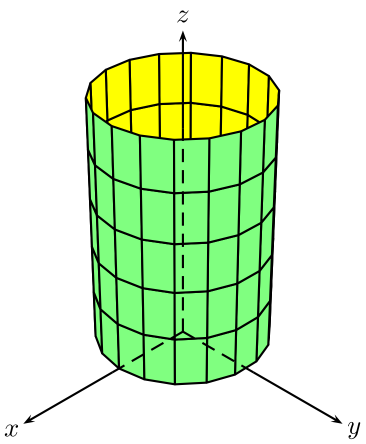

Figura 5: Cilindro elíptico $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

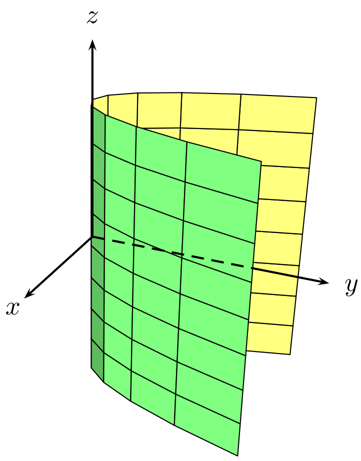

Figura 6: Cilindro parabólico $y = ax^2$, $a > 0$