

## Tabela de Integrais

$$1 \int u \, dv = uv - \int v \, du$$

$$2 \int u^n \, du = \frac{1}{n+1} u^{n+1} + C$$

$$3 \int \frac{du}{u} = \ln |u| + C$$

$$4 \int e^u \, du = e^u + C$$

$$5 \int a^u \, du = \frac{1}{\ln(a)} a^u + C$$

$$6 \int \operatorname{sen}(u) \, du = -\cos(u) + C$$

$$7 \int \cos(u) \, du = \operatorname{sen}(u) + C$$

$$8 \int \sec^2(u) \, du = \operatorname{tg}(u) + C$$

$$9 \int \operatorname{cosec}^2(u) \, du = -\operatorname{cotg}(u) + C$$

$$10 \int \sec(u) \operatorname{tg}(u) \, du = \sec(u) + C$$

$$11 \int \frac{\operatorname{cotg}(u)}{\operatorname{sen}(u)} \, du = -\frac{1}{\operatorname{sen}(u)} + C$$

$$12 \int \operatorname{tg}(u) \, du = \ln|\sec(u)| + C$$

$$13 \int \operatorname{cotg}(u) \, du = \ln|\operatorname{sen}(u)| + C$$

$$14 \int \sec(u) \, du = \ln|\sec(u) + \operatorname{tg}(u)| + C$$

$$15 \int \frac{du}{\operatorname{sen}(u)} = \ln \left| \frac{1 - \cos(u)}{\operatorname{sen}(u)} \right| + C$$

$$16 \int \frac{du}{\sqrt{a^2 - u^2}} = \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$17 \int \frac{du}{a^2 + u^2} = \frac{1}{a} \operatorname{arc} \operatorname{tg} \left( \frac{u}{a} \right) + C$$

$$18 \int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \operatorname{arc} \operatorname{sec} \left( \frac{u}{a} \right) + C$$

$$19 \int \frac{du}{a^2 - u^2} = \frac{1}{2a} \ln \left| \frac{u+a}{u-a} \right| + C$$

$$20 \int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln \left| \frac{u-a}{u+a} \right| + C$$

$$21 \int \sqrt{a^2 + u^2} \, du = \frac{u}{2} \sqrt{a^2 + u^2} + \frac{a^2}{2} \ln(u + \sqrt{a^2 + u^2}) + C$$

$$22 \int u^2 \sqrt{a^2 + u^2} \, du = \frac{(a^2 u + 2u^3) \sqrt{a^2 + u^2}}{8} - \frac{a^4}{8} \ln(u + \sqrt{a^2 + u^2}) + C$$

$$23 \int \frac{\sqrt{a^2 + u^2}}{u} \, du = \sqrt{a^2 + u^2} - a \ln \left| \frac{a + \sqrt{a^2 + u^2}}{u} \right| + C$$

$$24 \int \frac{\sqrt{a^2 + u^2}}{u^2} \, du = -\frac{\sqrt{a^2 + u^2}}{u} + \ln(u + \sqrt{a^2 + u^2}) + C$$

$$25 \int \frac{du}{\sqrt{a^2 + u^2}} = \ln(u + \sqrt{a^2 + u^2}) + C$$

$$26 \int \frac{u^2 \, du}{\sqrt{a^2 + u^2}} = \frac{u}{2} \sqrt{a^2 + u^2} - \frac{a^2}{2} \ln(u + \sqrt{a^2 + u^2}) + C$$

$$27 \int \frac{du}{u\sqrt{a^2 + u^2}} = -\frac{1}{a} \ln \left| \frac{\sqrt{a^2 + u^2} + a}{u} \right| + C$$

$$28 \int \frac{du}{u^2 \sqrt{a^2 + u^2}} = -\frac{\sqrt{a^2 + u^2}}{a^2 u} + C$$

$$29 \int \frac{du}{(a^2 + u^2)^{3/2}} = \frac{u}{a^2 \sqrt{a^2 + u^2}} + C$$

$$30 \int \sqrt{a^2 - u^2} \, du = \frac{u}{2} \sqrt{a^2 - u^2} + \frac{a^2}{2} \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$31 \int u^2 \sqrt{a^2 - u^2} \, du = \frac{u}{8} (2u^2 - a^2) \sqrt{a^2 - u^2} + \frac{a^4}{8} \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$32 \int \frac{\sqrt{a^2 - u^2}}{u} \, du = \sqrt{a^2 - u^2} - a \ln \left| \frac{a + \sqrt{a^2 - u^2}}{u} \right| + C$$

$$33 \int \frac{\sqrt{a^2 - u^2}}{u^2} \, du = -\frac{1}{u} \sqrt{a^2 - u^2} - \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$34 \int \frac{u^2 \, du}{\sqrt{a^2 - u^2}} = -\frac{u}{2} \sqrt{a^2 - u^2} + \frac{a^2}{2} \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$35 \int \frac{du}{u\sqrt{a^2 - u^2}} = -\frac{1}{a} \ln \left| \frac{\sqrt{a^2 - u^2} + a}{u} \right| + C$$

$$36 \int \frac{du}{u^2 \sqrt{a^2 - u^2}} = -\frac{\sqrt{a^2 - u^2}}{a^2 u} + C$$

$$37 \int (a^2 + u^2)^{3/2} \, du = -\frac{(2u^3 - 5a^2 u) \sqrt{a^2 + u^2}}{8} + \frac{3a^4}{8} \operatorname{arc} \operatorname{sen} \left( \frac{u}{a} \right) + C$$

$$38 \int \frac{du}{(a^2 - u^2)^{3/2}} = \frac{u}{a^2 \sqrt{a^2 - u^2}} + C$$

$$39 \int \sqrt{u^2 - a^2} \, du = \frac{u}{2} \sqrt{u^2 - a^2} - \frac{a^2}{2} \ln|u + \sqrt{u^2 - a^2}| + C$$

$$40 \int u^2 \sqrt{u^2 - a^2} \, du = -\frac{(2u^3 - a^2 u) \sqrt{u^2 - a^2}}{8} - \frac{a^4}{8} \ln|u + \sqrt{u^2 - a^2}| + C$$

$$41 \int \frac{\sqrt{u^2 - a^2}}{u} \, du = \sqrt{u^2 - a^2} - a \operatorname{arc} \operatorname{cos} \left( \frac{a}{u} \right) + C$$

$$42 \int \frac{\sqrt{u^2 - a^2}}{u^2} \, du = -\frac{\sqrt{u^2 - a^2}}{u} + \ln|u + \sqrt{u^2 - a^2}| + C$$

$$43 \int \frac{du}{\sqrt{u^2 - a^2}} = \ln|u + \sqrt{u^2 - a^2}| + C$$

$$44 \int \frac{u^2 \, du}{\sqrt{u^2 - a^2}} = \frac{u}{2} \sqrt{u^2 - a^2} + \frac{a^2}{2} \ln|u + \sqrt{u^2 - a^2}| + C$$

$$45 \int \frac{du}{u^2 \sqrt{u^2 - a^2}} = \frac{\sqrt{u^2 - a^2}}{a^2 u} + C$$

$$46 \int \frac{du}{(u^2 - a^2)^{3/2}} = -\frac{u}{a^2 \sqrt{u^2 - a^2}} + C$$

$$47 \int \frac{u \, du}{a + bu} = \frac{1}{b^2} (a + bu - a \ln|a + bu|) + C$$

$$48 \int \frac{u^2 \, du}{a + bu} = \frac{[(a + bu)^2 - 4a(a + bu) + 2a^2 \ln|a + bu|]}{2b^3} + C$$

$$49 \int \frac{du}{u(a + bu)} = \frac{1}{a} \ln \left| \frac{u}{a + bu} \right| + C$$

$$50 \int \frac{du}{u^2(a + bu)} = -\frac{1}{au} + \frac{b}{a^2} \ln \left| \frac{a + bu}{u} \right| + C$$

$$51 \int \frac{u \, du}{(a + bu)^2} = \frac{a}{b^2(a + bu)} + \frac{1}{b^2} \ln|a + bu| + C$$

$$52 \int \frac{du}{u(a + bu)^2} = \frac{1}{a(a + bu)} - \frac{1}{a^2} \ln \left| \frac{a + bu}{u} \right| + C$$

$$53 \int \frac{u^2 \, du}{(a + bu)^2} = \frac{1}{b^3} \left( a + bu - \frac{a^2}{a + bu} - 2a \ln|a + bu| \right) + C$$

$$54 \int u \sqrt{a + bu} \, du = \frac{2}{15b^2} (3bu - 2a) \sqrt{a + bu} + C$$

$$55 \int \frac{u \, du}{\sqrt{a + bu}} = \frac{2}{3b^2} (bu - 2a) \sqrt{a + bu} + C$$

$$56 \int \frac{u^2 \, du}{\sqrt{a + bu}} = \frac{2}{15b^3} (8a^2 + 3b^2 u^2 - 4abu) \sqrt{a + bu} + C$$

$$57 \int \frac{du}{u\sqrt{a + bu}} = \frac{1}{\sqrt{a}} \ln \left| \frac{\sqrt{a + bu} - \sqrt{a}}{\sqrt{a + bu} + \sqrt{a}} \right| + c, \text{ se } a > 0$$

$$58 \int \frac{\sqrt{a + bu}}{u} \, du = 2\sqrt{a + bu} + a \int \frac{du}{u\sqrt{a + bu}}$$

$$59 \int \frac{\sqrt{a + bu}}{u^2} \, du = -\frac{\sqrt{a + bu}}{u} + \frac{b}{2} \int \frac{du}{u\sqrt{a + bu}}$$

$$60 \int u \sqrt{a + bu} \, du = \frac{2[u^2(a + bu)^{3/2} - na \int u^{n-1} \sqrt{a + bu} \, du]}{b(2n+3)}$$

$$61 \int \frac{u^n \, du}{\sqrt{a + bu}} = \frac{2u^n \sqrt{a + bu}}{b(2n-1)} - \frac{2na}{b(2n+1)} \int \frac{u^{n-1} \, du}{\sqrt{a + bu}}$$

$$62 \int \frac{u^{n-1} \, du}{\sqrt{a + bu}} = \frac{\sqrt{a + bu}}{a(n-1)u^{n-1}} - \frac{b(2n-3)}{2a(n-1)} \int \frac{u^{n-1} \, du}{\sqrt{a + bu}}$$

$$63 \int \operatorname{sen}^2(u) \, du = \frac{1}{2} u - \frac{1}{4} \operatorname{sen}(2u) + C$$

$$64 \int \operatorname{cos}^2(u) \, du = \frac{1}{2} u + \frac{1}{4} \operatorname{sen}(2u) + C$$

$$65 \int \operatorname{tg}^2(u) \, du = \operatorname{tg}(u) - u + C$$

$$66 \int \operatorname{cotg}^2(u) \, du = -\operatorname{cotg}(u) - u + C$$

$$67 \int \operatorname{sen}^3(u) \, du = -\frac{[2 + \operatorname{sen}^2(u)] \operatorname{cos}(u)}{3} + C$$

$$68 \int \operatorname{cos}^3(u) \, du = \frac{[2 + \operatorname{cos}^2(u)] \operatorname{sen}(u)}{3} + C$$

$$69 \int \operatorname{tg}^3(u) \, du = \frac{\operatorname{tg}^2(u)}{2} + \ln|\operatorname{cos}(u)| + C$$

$$70 \int \operatorname{cotg}^3(u) \, du = -\frac{\operatorname{cotg}^2(u)}{2} - \ln|\operatorname{sen}(u)| + C$$

$$71 \int \operatorname{sec}^3(u) \, du = -\frac{\operatorname{sec}(u) \operatorname{tg}(u)}{2} - \frac{\ln|\operatorname{sen}(u) + \operatorname{tg}(u)|}{2} + C$$

$$72 \int \frac{du}{\operatorname{sen}^3(u)} = -\frac{\operatorname{cotg}(u)}{2 \operatorname{sen}(u)} + \frac{\ln|\operatorname{cosec}(u) - \operatorname{cotg}(u)|}{2} + C$$

$$73 \int \operatorname{sen}^n(u) \, du = -\frac{\operatorname{sen}^{n-1}(u) \operatorname{cos}(u)}{n} + \frac{n-1}{n} \int \operatorname{sen}^{n-2}(u) \, du$$

$$74 \int \operatorname{cos}^n(u) \, du = \frac{\operatorname{cos}^{n-1}(u) \operatorname{sen}(u)}{n} + \frac{n-1}{n} \int \operatorname{cos}^{n-2}(u) \, du$$

$$75 \int \operatorname{tg}^n(u) \, du = \frac{\operatorname{tg}^{n-1}(u)}{n-1} - \int \operatorname{tg}^{n-2}(u) \, du$$

$$76 \int \operatorname{cotg}^n(u) \, du = -\frac{\operatorname{cotg}^{n-1}(u)}{n-1} - \int \operatorname{cotg}^{n-2}(u) \, du$$

$$77 \int \operatorname{sec}^n(u) \, du = \frac{\operatorname{tg}(u) \operatorname{sec}^{n-2}(u)}{n-1} + \frac{n-2}{n-1} \int \operatorname{sec}^{n-2}(u) \, du$$

$$78 \int \frac{du}{\operatorname{sen}^n(u)} = -\frac{\operatorname{cotg}(u)}{(n-1) \operatorname{sen}^{n-2}(u)} + \frac{n-2}{n-1} \int \frac{du}{\operatorname{sen}^{n-2}(u)}$$

$$79 \int \operatorname{sen}(au) \operatorname{sen}(bu) \, du = \frac{\operatorname{sen}(a-b)u}{2(a-b)} - \frac{\operatorname{sen}(a+b)u}{2(a+b)} + C$$

$$80 \int \operatorname{cos}(au) \operatorname{cos}(bu) \, du = \frac{\operatorname{sen}(a-b)u}{2(a-b)} + \frac{\operatorname{sen}(a+b)u}{2(a+b)} + C$$