

REFERENCIAS BIBLIOGRAFICAS




ALUMNA: DIANA CITLALI CRUZ RIOS

MAESTRO: JUAN JOSE OJEDA  
TRUJILLO

ASIGNATURA: MATEMATICAS  
APLICADAS

SEXTO SEMESTRE, BACHILLERATO  
EN ENFERMERIA



EJERCICIO 1

$$\int x^5 dx = \frac{x^6}{6} + C \quad \text{Formula 4f}$$

$$u = x \\ m = 5 \\ m+1 = 6$$

EJERCICIO 2.

$$\int \frac{dx}{x^2} = \int x^{-2} dx = \frac{x^{-1}}{-1} + C = \left\{ \frac{-1}{x} + C \right\}$$

$$u = x \\ m = -2 \\ m+1 = -1$$

EJERCICIO 3.

$$\int \sqrt[3]{x} dx = \int x^{1/3} dx = \frac{x^{4/3}}{4/3} + C \\ = \frac{3}{4} x^{4/3} + C \\ = \frac{3 \sqrt[3]{x^4}}{4} + C$$

$$u = x \\ m = 1/3 \\ m+1 = 4/3$$

$$\int \frac{dx}{\sqrt[3]{x^2}} = \int \frac{dx}{x^{2/3}} = \int x^{-2/3} dx = \frac{x^{1/3}}{1/3} + C =$$

$$u = x \\ m = -2/3 \\ m+1 = 1/3$$

$$3 \sqrt[3]{x} + C$$

$$-\frac{2}{3} + \frac{3}{3} = \frac{1}{3}$$

$$\int (2x^2 - 5x + 3) dx$$

$$\int 2x^2 dx - \int 5x dx + \int 3 dx$$

$$2 \int x^2 dx - 5 \int x dx + 3 \int dx = \frac{2x^3}{3} - \frac{5x^2}{2} + 3x$$

$$\int (1-x) \sqrt{x} dx$$

$$\textcircled{1} (1-x) \sqrt{x}$$

$$(1-x) x^{1/2}$$

$$\int x^{1/2} - x^{3/2} dx$$

$$\int x^{1/2} dx - \int x^{3/2} dx = \frac{x^{3/2}}{3/2} - \frac{x^{5/2}}{5/2} + C \\ = \frac{2 \sqrt[3]{x^3}}{3} - \frac{2 \sqrt[5]{x^5}}{5} + C$$

$$\int (3x+4)^2 dx \quad (3x+4)(3x+4)$$

$$\int (9x^2 + 24x + 16) dx \quad \frac{9x^2 + 12x + 12x + 16}{9x^2 + 24x + 16}$$

$$9 \int x^2 dx + 24 \int x dx + 16 \int dx$$

$$\frac{9x^3}{3} + \frac{24x^2}{2} + 16x + C = 3x^3 + 12x^2 + 16x + C$$

$$\int \frac{x^3 + 5x^2 - 4}{x^2} dx$$

$$\int \frac{x^3}{x^2} dx + 5 \int \frac{x^2}{x^2} dx - 4 \int \frac{dx}{x^2}$$

$$\int \frac{4 dx}{x^2} = 4 \int \frac{dx}{x^2} = 4 x^{-2} dx = \frac{4x^{-1}}{-1} + C$$

$$\frac{x^2}{2} + 5x + \frac{4}{x} + C$$

$$\int \frac{(1+x)^2}{\sqrt{x}} dx \quad (1+x)(1+x)$$

$$1+x+x+x^2$$

$$\frac{1+2x+x^2}{\sqrt{x}} = \frac{1}{x^{1/2}} + \frac{2x}{x^{1/2}} + \frac{x^2}{x^{1/2}}$$

$$x^{-1/2} + 2x(x^{-1/2}) + x^2(x^{-1/2})$$

$$\int (x^{-1/2} + 2x^{1/2} + x^{3/2}) dx$$

$$\frac{x^{1/2}}{1/2} + \frac{2x^{3/2}}{3/2} + \frac{x^{5/2}}{5/2} + C$$

$$2\sqrt{x} + \frac{4}{3}\sqrt{x^3} + \frac{2\sqrt{x^5}}{5} + C$$



$$\int \frac{x^3 + 5x^2 - 4}{x^2} dx$$

$$\int x dx + 5 \int dx - 4 \int \frac{dx}{x^2}$$

$$\rightarrow x^{-2} dx = \frac{x^{-1}}{-1} = -\frac{1}{x}$$

$$\frac{x^2}{2} - 5x + \frac{4}{x} + C$$

$$\int (\sqrt{x} - \frac{1}{2}x + \frac{2}{\sqrt{x}}) dx = \int x^{1/2} - \frac{1}{2}x + 2x^{-1/2} dx$$

$$\int x^{1/2} dx - \frac{1}{2} \int x dx + 2 \int x^{-1/2} dx$$

$$\frac{x^{3/2}}{3/2} - \frac{1}{2} \int \frac{x^2}{2} + 2 \int x^{-1/2}$$

$$\frac{2\sqrt{x^3}}{3} - \frac{x^2}{4} + 4\sqrt{x} + C$$

$$\int \frac{2x^{3/2}}{(a+x)^3} dx$$

$$(a+x)(a+x)(a+x)$$

$$(a^2 + ax + xa + x^2)(a+x)$$

$$(a^2 + 2ax + x^2)(a+x)$$

$$a^3 + a^2x + 2ax^2 + xa^2 + x^3$$

$$a^3 + 3a^2x + 3ax^2 + x^3$$

$$a^3 \int dx + 3a^2 \int x dx + 3a \int x^2 dx + \int x^3 dx$$

$$a^3 x + 3 \frac{ax^2}{2} + \frac{3ax^3}{3} + \frac{x^4}{4} + C$$

$$a^3 x + 3 \frac{ax^2}{2} + ax^3 + \frac{x^4}{4} + C$$

$$\int e^x dx = e^x + C$$

$$\int e^{2x} dx = \frac{1}{2} e^{2x} + C$$

$$\int e^{3x} dx = \frac{1}{3} e^{3x} + C$$

$$\int \frac{dx}{x+1} = \ln|x+1| + C$$

$$\int \frac{dx}{2x+2} = \frac{1}{2} \ln|2x+2| + C$$

$$\int \frac{dx}{x} = \ln|x| + C$$

$$\int \cos 2x dx = \frac{1}{2} \sin 2x + C$$

$$\int \sin \frac{x}{3} dx = -3 \cos \frac{x}{3} + C$$

$$\int \tan 3x dx = \frac{1}{3} |\sec 3x| + C$$

Formula  $\int \frac{dx}{a^2 + u^2} = \frac{1}{a} \text{ARCTAN} \frac{u}{a} + C$

$$19 \int \frac{dx}{4x^2 + 9} = \frac{1}{3} \text{ARCTAN} \frac{2x}{3} + C$$

$$u^2 = 4x^2$$

$$u = 2x$$

$$a^2 = 9$$

$$a = 3$$

Formula  $\int \frac{dx}{\sqrt{a^2 - u^2}} = \text{ARCSIN} \frac{u}{a} + C$

$$\int \frac{dx}{\sqrt{4 - x^2}} = \text{ARCSIN} x + C$$

$$u^2 = x^2$$

$$u = x$$

$$a^2 = 4$$

$$a = 2$$

$$\int \frac{dx}{9 + x^2} = \frac{1}{3} \text{ARCTAN} \frac{x}{3} + C$$

$$u^2 = x^2$$

$$u = x$$

$$a^2 = 9$$

$$a = 3$$

$$\int \frac{dx}{\sqrt{25-16x^2}} = \text{ARC TAN } 4x + C$$

$$u^2 = 16x^2$$

$$u = 4x$$

$$a^2 = 25$$

$$a = 5$$
  

$$\int \sqrt{25-x^2} dx$$

Formula

$$\frac{1}{2} x \sqrt{25-x^2} - \frac{1}{2} 25 \text{ARCSEN } \frac{x}{5} + C$$

$$a^2 = 25$$

$$a = 5$$

$$u^2 = x^2$$

$$u = x$$
  

$$\int \frac{dx}{x^2-49} = \frac{1}{2(7)} \left| \ln \left| \frac{x-7}{x+7} \right| \right| + C$$

$$a^2 = 49$$

$$a = 7$$

$$u^2 = x^2$$

$$u = x$$

$$\int (x+3)^2 dx = \frac{(x+3)(x+3)}{x^2+3x+3x+9} = \frac{(x+3)^2}{x^2+6x+9}$$

$$\int (x^2+6x+9) dx$$

$$\int x^2 dx + 6 \int x dx + 9 \int dx$$

$$= \frac{1x^3}{3} + \frac{6x^2}{2} + 9x + C$$

$$= \frac{1x^3}{3} + 3x^2 + 9x + C$$
  

$$\int \cos \frac{2x}{3} dx = \frac{3}{2} \text{SEN } x + C$$

$$\int \frac{dx}{x^4+81} = \frac{1}{9} \text{ARCTAN } \frac{x^2}{9} + C$$

$$a^2 = 81$$

$$a = 9$$

$$u^2 = x^4$$

$$u = x^2$$
  

$$\int \frac{1}{(x-2)^2} dx = \frac{(x-2)(x-2)}{x^2-2x-2x+4}$$

$$\int \frac{1}{(x^2-4x+4)} dx = \frac{1}{x^2-4x+4}$$

$$\int x^{-2} dx - \frac{1}{4} \int \frac{dx}{x} + \frac{1}{4} \int dx$$

$$= x^{-1} - \frac{1}{4} \ln x + \frac{1}{4} x + C$$

$$= \frac{1}{x} - \frac{1}{4} \ln x + \frac{x}{4} + C$$

$$\int \frac{(1+\sqrt{x})^2}{\sqrt{x}} dx = \frac{(1+x^{1/2})(1+x^{1/2})}{1+2x^{1/2}+x}$$

$$= \int \frac{(1+2\sqrt{x}+x)}{\sqrt{x}} dx$$

$$= \int \frac{dx}{\sqrt{x}} + 2 \int \frac{\sqrt{x}}{\sqrt{x}} dx + \int \frac{x dx}{\sqrt{x}}$$

$$= \int x^{-1/2} dx + 2 \int dx + \int x^{2/2} \cdot x^{-1/2} dx$$

$$= \frac{x^{1/2}}{1/2} + 2x + \frac{x^{5/2}}{5/2} + C$$

$$= 2\sqrt{x} + 2x + \frac{2}{5} \sqrt{x^5} + C$$



$$\int \frac{dx}{x-1} = \frac{1}{2} \left| \ln \left| \frac{x-1}{x+1} \right| \right| + C$$

$$U = x - 1 \\ a = -1$$

$$\int a^{2x} dx = \frac{a^{2x}}{\ln a} + C$$

$$\int \frac{dx}{\sqrt{5-x^2}} = \frac{\text{ARC SEN } X}{\sqrt{5}} + C$$

$$U = x^2 \\ U = x$$

$$\int \frac{dx}{x\sqrt{x^2-5}} = \frac{1}{\sqrt{5}} \text{ARC SEC } \frac{x}{\sqrt{5}} + C$$

$$U = x^2 \\ U = x \\ a^2 = 25 \\ a = 5$$

$$\int \frac{dx}{4x^2-9} = \frac{1}{2(3)} \ln \left| \frac{2x-3}{2x+3} \right| + C$$

$$U = 4x^2 \\ U = 2x \\ a^2 = 9 \\ a = 3$$

$$\int \sqrt{16-9x^2} dx = \frac{1}{2} (3x) \sqrt{16-9x^2} + \frac{1}{2} (16) \text{ARC SEN } \frac{3x}{4} + C \\ = \frac{3x}{2} \sqrt{16-9x^2} + 8 \text{ARC SEN } \frac{3x}{4} + C$$

$$\int (e^x + 1)^2 dx = (e^x + 1)(e^x + 1) \\ \int (e^{2x} + 2e^x + 1) dx$$

$$\int e^{2x} dx + 2 \int e^x dx + \int dx$$

$$\frac{1}{2} e^{2x} + 2e^x + x + C$$