

Ejercicios propuestos

$$1) \int \sqrt{\frac{x}{x+1}} dx = \text{Log}|\sqrt{x+1} - \sqrt{x}| + \sqrt{x(x+1)} + C$$

$$2) \int \frac{dx}{x\sqrt{1-x}} = 2\text{Log}|1 - \sqrt{1-x}| - \text{Log}|x| + C$$

$$3) \int \frac{1 + 3\sqrt[6]{x-2}}{\sqrt[3]{(x-2)^2} - \sqrt{x-2}} dx = 6\sqrt{x-2} + 12\sqrt[3]{x-2} + \\ + 24\sqrt[6]{x-2} + 24\text{Log}|\sqrt[6]{x-2} - 1| + C$$

$$4) \int \frac{dx}{x^{1/2} - x^{1/4}} = 2\sqrt{x} + 4\sqrt[4]{x} + 4\text{Log}|\sqrt[4]{x} - 1| + C$$

$$5) \int \frac{dx}{(5-x)\sqrt{3-x}} = -\sqrt{2}\text{arctg}\left(\sqrt{\frac{3-x}{2}}\right) + C$$

Integración de funciones irracionales

$$6) \int \frac{dx}{(x-2)\sqrt{x+2}} = \frac{1}{2} \text{Log} \left| \frac{\sqrt{x+2}-2}{\sqrt{x+2}+2} \right| + C$$

$$7) \int \frac{dx}{\sqrt{x+1} + \sqrt[4]{x+1}} = 2\sqrt{x+1} - 4\sqrt[4]{x+1} + 4\text{Log}(1 + \sqrt[4]{x+1}) + C$$

$$8) \int \frac{1 - \sqrt{3x+2}}{1 + \sqrt{3x+2}} dx = -x + \frac{4}{3}\sqrt{3x+2} - \frac{4}{3}\text{Log}(1 + \sqrt{3x+2}) + C$$

$$9) \int \frac{dx}{\sqrt{2x-1} - \sqrt[4]{2x-1}} = 1 + \sqrt[4]{(2x-1)^2} + 2\text{Log}|\sqrt[4]{2x-1} - 1| + C$$

$$10) \int \frac{x^2}{\sqrt{2x-x^2}} dx = -\left(\frac{x}{2} + \frac{3}{2}\right)\sqrt{2x-x^2} + \frac{3}{2}\arcsen(x-1) + C$$

$$11) \int x^2 \sqrt{x^2+4} dx = \left(\frac{x^3}{4} + \frac{x}{2}\right)\sqrt{x^2+4} - 2\text{Log}|x + \sqrt{x^2+4}| + C$$

$$12) \int \frac{x^5}{\sqrt{1-x^2}} dx = \left(\frac{x^4}{5} - \frac{4x^2}{15} - \frac{8}{15}\right)\sqrt{1-x^2} + C$$

$$13) \int \sqrt{9+10x-7x^2} dx = \frac{7x-5}{14}\sqrt{9+10x-7x^2} + \frac{44}{7\sqrt{7}}\arcsen\left(\frac{7x-5}{2\sqrt{22}}\right) + C$$

$$14) \int \frac{dx}{(x-2)\sqrt{x^2-4x+1}} = -\frac{1}{\sqrt{3}}\arcsen\left(\frac{\sqrt{3}}{x-2}\right) + C$$

$$15) \int \frac{dx}{x^2 \sqrt{4+x^2}} = \frac{\sqrt{4+x^2}}{4x} + C$$

$$16) \int \frac{dx}{\sqrt{x^2+x-2}} = \text{Log} \left| x + \frac{1}{2} + \sqrt{x^2+x-2} \right| + C$$

$$17) \int \frac{dx}{\sqrt{-4x^2+2x+1}} = \frac{1}{2} \arcsen \left(\frac{8x-2}{\sqrt{20}} \right) + C$$

$$18) \int \sqrt{2x^2+x+10} \, dx = \frac{4x+1}{8} \sqrt{2x^2+x+10} + \\ + \frac{79\sqrt{2}}{32} \text{Log} \left| x + \frac{1}{4} + \sqrt{x^2 + \frac{x}{2} + 5} \right| + C$$

$$19) \int \frac{dx}{\sqrt{2+3x-2x^2}} = \frac{1}{\sqrt{2}} \arcsen \left(\frac{4x-3}{5} \right) + C$$

$$20) \int \frac{dx}{\sqrt{x-x^2}} = \arcsen(2x-1) + C$$

$$21) \int \frac{2x-8}{\sqrt{1-x-x^2}} \, dx = -2\sqrt{1-x-x^2} - 9\arcsen \left(\frac{2x-1}{\sqrt{5}} \right) + C$$

$$22) \int \frac{x}{\sqrt{5x^2-2x+1}} \, dx = \frac{1}{5} \sqrt{5x^2-2x+1} + \\ + \frac{\sqrt{5}}{25} \text{Log} \left| x - \frac{1}{5} + \sqrt{x^2 - \frac{2x}{5} + \frac{1}{5}} \right| + C$$

$$23) \int \frac{-4x+10}{\sqrt{-x^2+4x-3}} \, dx = 4\sqrt{-x^2+4x-3} + 2\arcsen(x-2) + C$$

Integración de funciones irracionales

$$24) \int \frac{dx}{x\sqrt{1-x^2}} = -\text{Log} \left| \frac{1}{x} + \frac{\sqrt{1-x^2}}{x} \right| + C$$

$$25) \int \frac{dx}{x\sqrt{x^2-x-1}} = -\text{arcsen} \left(\frac{x+2}{x\sqrt{5}} \right) + C$$

$$26) \int \frac{dx}{(x+1)\sqrt{x^2+2x}} = -\text{arcsen} \left(\frac{1}{x+1} \right) + C$$

$$27) \int \frac{x}{(x^2+1)\sqrt{1-x^4}} dx = -\frac{1}{2} \sqrt{\frac{2}{x^2+1}} - 1 + C$$

$$28) \int \frac{x+2}{\sqrt{x^2+4x+1}} dx = \sqrt{x^2+4x+1} + C$$

$$29) \int \frac{dx}{(x+1)\sqrt{x^2+1}} = -\frac{1}{\sqrt{2}} \text{Log} \left| \frac{2}{x+1} - 1 + \sqrt{1 + \left(\frac{2}{x+1} - 1 \right)^2} \right| + C$$

$$30) \int \frac{dx}{(x-1)\sqrt{1+x-x^2}} = -\text{Log} \left| \frac{1}{x-1} - \frac{1}{2} + \sqrt{\left(\frac{1}{x-1} - \frac{1}{2} \right)^2 - \frac{5}{4}} \right| + C$$

$$31) \int \frac{dx}{x^4\sqrt{x^2+1}} = -\frac{1}{3} \frac{\sqrt{(1+x^2)^3}}{x^3} + \frac{\sqrt{1+x^2}}{x} + C$$

$$32) \int \frac{dx}{\sqrt{x^2-2x+5}} = \text{Log} \left| \frac{x-1}{2} + \sqrt{\left(\frac{x-1}{2} \right)^2 + 1} \right| + C$$

Introducción al cálculo integral

$$33) \int \frac{x}{\sqrt{27+6x-x^2}} dx = -\sqrt{27+6x-x^2} + 3\operatorname{arcsen}\left(\frac{x-3}{6}\right) + C$$

$$34) \int \frac{x}{\sqrt{x^2+x+1}} dx = \sqrt{x^2+x+1} - \frac{1}{2} \operatorname{Log}\left|2x+1+\sqrt{(2x+1)^2+1}\right| + C$$

$$35) \int \frac{dx}{(x+1)^3 \sqrt{x^2+2x}} = \frac{1}{2} \frac{\sqrt{x^2+2x}}{(x+1)^2} - \frac{1}{2} \operatorname{arcsen}\left(\frac{1}{x+1}\right) + C$$