

## DERIVADAS E INTEGRALES

### DERIVADAS

u, v, w = funciones

$$1) \frac{d}{dx} x = 1$$

$$2) \frac{d}{dx} k = 0 \quad k = \text{cte}$$

$$3) \frac{d}{dx} (u + v - w) = \frac{du}{dx} + \frac{dv}{dx} - \frac{dw}{dx}$$

$$4) \frac{d}{dx} (kv) = k \frac{dv}{dx}$$

$$5) \frac{d}{dx} (x^n) = nx^{n-1}$$

$$6) \frac{d}{dx} (v)^n = n(v)^{n-1} \frac{dv}{dx}$$

$$7) \frac{d}{dx} (uv) = u \frac{dv}{dx} + v \frac{du}{dx}$$

$$8) \frac{d}{dx} \left( \frac{u}{v} \right) = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}$$

$$9) \frac{d}{dx} \sqrt{v} = \frac{\frac{dv}{dx}}{2\sqrt{v}}$$

$$10) \frac{d}{dx} (\ln v) = \frac{\frac{dv}{dx}}{v}$$

$$11) \frac{d}{dx} (a^v) = a^v \ln a \frac{dv}{dx} \quad a \text{ es una base}$$

$$12) \frac{d}{dx} (e^v) = e^v \frac{dv}{dx}$$

$$13) \frac{d}{dx} (u^v) = vu^{v-1} \frac{du}{dx} + u^v \ln u \frac{dv}{dx}$$

$$14) \frac{d}{dx} (\text{sen } v) = \cos v \frac{dv}{dx}$$

$$15) \frac{d}{dx} (\cos v) = -\text{sen } v \frac{dv}{dx}$$

$$16) \frac{d}{dx} (\tan v) = \sec^2 v \frac{dv}{dx}$$

$$17) \frac{d}{dx} (\text{ctg } v) = -\text{csc}^2 v \frac{dv}{dx}$$

$$18) \frac{d}{dx} (\sec v) = \sec v \cdot \tan v \frac{dv}{dx}$$

$$19) \frac{d}{dx} (\csc v) = -\csc v \cdot \text{ctg } v \frac{dv}{dx}$$

$$20) \frac{d}{dx} (\log v) = \frac{\log e}{v} \cdot \frac{dv}{dx}$$

$$21) \frac{d}{dx} (\text{arc sen } v) = \frac{\frac{dv}{dx}}{\sqrt{1-v^2}}$$

$$22) \frac{d}{dx} (\text{arc cos } v) = -\frac{\frac{dv}{dx}}{\sqrt{1-v^2}}$$

$$23) \frac{d}{dx} (\text{arc tan } v) = \frac{\frac{dv}{dx}}{1+v^2}$$

$$24) \frac{d}{dx} (\text{arc ctg } v) = -\frac{\frac{dv}{dx}}{1+v^2}$$

$$25) \frac{d}{dx} (\text{arc sec } v) = \frac{\frac{dv}{dx}}{v\sqrt{v^2-1}}$$

$$26) \frac{d}{dx} (\text{arc csc } v) = -\frac{\frac{dv}{dx}}{v\sqrt{v^2-1}}$$

$$12) \int \csc^2 v \, dv = -\text{ctg } v + c$$

$$13) \int \sec v \tan v \, dv = \sec v + c$$

$$14) \int \csc v \text{ctg } v \, dv = -\csc v + c$$

$$15) \int \tan v \, dv = \ln |\sec v| + c$$

$$16) \int \text{ctg } v \, dv = \ln |\text{sen } v| + c$$

$$17) \int \sec v \, dv = \ln |\sec v + \tan v| + c$$

$$18) \int \csc v \, dv = \ln |\csc v - \text{ctg } v| + c$$

$$19) \int \frac{dv}{v^2 + a^2} = \frac{1}{a} \text{arc tan } \frac{v}{a} + c$$

$$20) \int \frac{dv}{a^2 - v^2} = \frac{1}{2a} \ln \left| \frac{a+v}{a-v} \right| + c$$

$$21) \int \frac{dv}{v^2 - a^2} = \frac{1}{2a} \ln \left| \frac{v-a}{v+a} \right| + c$$

$$22) \int \frac{dv}{\sqrt{a^2 - v^2}} = \text{arc sen } \frac{v}{a} + c$$

$$23) \int \frac{dv}{\sqrt{v^2 \pm a^2}} = \ln \left| v + \sqrt{v^2 \pm a^2} \right| + c$$

$$24) \int \frac{dv}{v\sqrt{v^2 - a^2}} = \frac{1}{a} \text{arc sec } \frac{v}{a} + c$$

$$25) \int \sqrt{a^2 - v^2} \, dv = \frac{1}{2} v \sqrt{a^2 - v^2} + \frac{1}{2} a^2 \text{arc sen } \frac{v}{a} + c$$

$$26) \int \sqrt{v^2 \pm a^2} \, dv = \frac{1}{2} v \sqrt{v^2 \pm a^2} \pm \frac{1}{2} a^2 \ln \left| v + \sqrt{v^2 \pm a^2} \right| + c$$

### INTEGRALES

c constante de integración

$$1) \int dx = x + c$$

$$2) \int (du + dv - dw) = \int du + \int dv - \int dw + c$$

$$3) \int k \, dv = k \int dv \quad k = \text{cte}$$

$$4) \int x^n \, dx = \frac{x^{n+1}}{n+1} + c$$

$$5) \int v^n \, dv = \frac{v^{n+1}}{n+1} + c$$

$$6) \int \frac{dv}{v} = \ln |v| + c$$

$$7) \int a^v \, dv = \frac{a^v}{\ln a} + c \quad a \text{ es una base}$$

$$8) \int e^v \, dv = e^v + c$$

$$9) \int \text{sen } v \, dv = -\cos v + c$$

$$10) \int \cos v \, dv = \text{sen } v + c$$

$$11) \int \sec^2 v \, dv = \tan v + c$$

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