

Derivadas de las funciones algebraicas

- 1) $\frac{d}{dx} k = 0; k = constante$
- 2) $\frac{d}{dx} x = 1$
- 3) $\frac{d}{dx} kx = k \frac{d}{dx} x = k$
- 4) $\frac{d}{dx} x^n = nx^{n-1}$
- 5) $\frac{d}{dx} kx^n = k \frac{d}{dx} x^n = knx^{n-1}$
- 6) $\frac{d}{dx} k f(x) = k \frac{d}{dx} f(x)$
- 7) $\frac{d}{dx} [f(x) + g(x)] = \frac{d}{dx} f(x) + \frac{d}{dx} g(x)$
- 8) $\frac{d}{dx} [f(x) - g(x)] = \frac{d}{dx} f(x) - \frac{d}{dx} g(x)$
- 9) $\frac{d}{dx} u^n = nu^{n-1} \frac{d}{dx} u$
- 10) $\frac{d}{dx} \sqrt{u} = \frac{1}{2\sqrt{u}} \frac{d}{dx} u$
- 11) $\frac{d}{dx} (uv) = u \frac{d}{dx} v + v \frac{d}{dx} u$
- 12) $\frac{d}{dx} \frac{u}{v} = \frac{v \frac{d}{dx} u - u \frac{d}{dx} v}{v^2}$

Derivadas de las funciones trigonometricas

- 13) $\frac{d}{dx} senu = cosu \frac{d}{dx} u$
- 14) $\frac{d}{dx} cosu = -senu \frac{d}{dx} u$
- 15) $\frac{d}{dx} tanu = sec^2u \frac{d}{dx} u$
- 16) $\frac{d}{dx} cotu = -csc^2u \frac{d}{dx} u$
- 17) $\frac{d}{dx} secu = secu tanu \frac{d}{dx} u$
- 18) $\frac{d}{dx} cscu = -cscu cotu \frac{d}{dx} u$

Derivadas de las funciones trigonometricas inversas

- 19) $\frac{d}{dx} arc senu = \frac{1}{\sqrt{1-u^2}} \frac{d}{dx} u$
- 20) $\frac{d}{dx} arc cosu = -\frac{1}{\sqrt{1-u^2}} \frac{d}{dx} u$
- 21) $\frac{d}{dx} arc tanu = \frac{1}{1+u^2} \frac{d}{dx} u$
- 22) $\frac{d}{dx} arc cotu = -\frac{1}{1+u^2} \frac{d}{dx} u$
- 23) $\frac{d}{dx} arc secu = \frac{1}{u\sqrt{u^2-1}} \frac{d}{dx} u$
- 24) $\frac{d}{dx} arc cscu = -\frac{1}{u\sqrt{u^2-1}} \frac{d}{dx} u$

Identidades trigonometricas

<div>Básicas y Suma/Resta</div> <div>$\sin \theta = \frac{1}{\csc \theta}$$\cos \theta = \frac{1}{\sec \theta}$$\csc \theta = \frac{1}{\sin \theta}$$\sec \theta = \frac{1}{\cos \theta}$$\cot \theta = \frac{\cos \theta}{\sin \theta} = \frac{1}{\tan \theta}$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{1}{\cot \theta}$$\sin^2 \theta + \cos^2 \theta = 1$$1 + \tan^2 \theta = \sec^2 \theta$$1 + \cot^2 \theta = \csc^2 \theta$$\sin(\theta \pm \beta) = \sin \theta \cos \beta \pm \sin \beta \cos \theta$$\cos(\theta \pm \beta) = \cos \theta \cos \beta \mp \sin \theta \sin \beta$$\tan(\theta \pm \beta) = \frac{\tan \theta \pm \tan \beta}{1 \mp \tan \theta \tan \beta}$</div>	<div>Ángulo Doble y Medio</div> <div>$\sin(2\theta) = 2 \sin \theta \cos \theta$$\cos(2\theta) = \cos^2 \theta - \sin^2 \theta$$\cos(2\theta) = 1 - 2 \sin^2 \theta$$\cos(2\theta) = 2 \cos^2 \theta - 1$$\tan(2\theta) = \frac{2 \tan \theta}{1 - \tan^2 \theta}$$\sin \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{2}}$$\cos \frac{\theta}{2} = \pm \sqrt{\frac{1 + \cos \theta}{2}}$$\tan \frac{\theta}{2} = \pm \sqrt{\frac{1 - \cos \theta}{1 + \cos \theta}}$$\tan \frac{\theta}{2} = \frac{1 - \cos \theta}{\sin \theta} = \frac{\sin \theta}{1 + \cos \theta}$<div>Par, impar</div>$\sin(-\theta) = -\sin \theta$$\cos(-\theta) = \cos \theta$</div>	<div>Suma a Producto; Producto a Suma</div> <div>$\sin \theta + \sin \beta = 2 \sin \left(\frac{\theta + \beta}{2} \right) \cos \left(\frac{\theta - \beta}{2} \right)$$\sin \theta - \sin \beta = 2 \sin \left(\frac{\theta - \beta}{2} \right) \cos \left(\frac{\theta + \beta}{2} \right)$$\cos \theta + \cos \beta = 2 \cos \left(\frac{\theta + \beta}{2} \right) \cos \left(\frac{\theta - \beta}{2} \right)$$\cos \theta - \cos \beta = -2 \sin \left(\frac{\theta + \beta}{2} \right) \sin \left(\frac{\theta - \beta}{2} \right)$$\sin \theta \sin \beta = \frac{1}{2} [\cos(\theta - \beta) - \cos(\theta + \beta)]$$\cos \theta \cos \beta = \frac{1}{2} [\cos(\theta - \beta) + \cos(\theta + \beta)]$$\sin \theta \cos \beta = \frac{1}{2} [\sin(\theta + \beta) + \sin(\theta - \beta)]$</div> <div>Suplemento, complemento</div> <div>$\sin(\pi \pm \theta) = \mp \sin \theta$$\cos(\pi \pm \theta) = -\cos \theta$$\sin(\pi/2 - \theta) = \cos \theta$$\cos(\pi/2 - \theta) = \sin \theta$</div>
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Formulario de integrales

1.- $\int du = u + c$; $u = f(x)$ y $c = cte$	11.- $\int \sec^2 u du = \tan u + c$	21) $\int \csc u \cot u du = -\csc u + C$
2.- $\int u^n du = \frac{u^{n+1}}{n+1} + c$; para $n \neq -1$	12.- $\int \csc^2 u du = -\cot u + c$	22) $\int \tan u du = \ln \sec u + C$
3.- $\int \frac{du}{u} = \ln u + c$	13.- $\int \sec u \tan u du = \sec u + c$	23) $\int \cot u du = \ln \csc u + C$
4.- $\int e^u du = e^u + c$	14.- $\int \csc u \cot u du = -\csc u + c$	24) $\int \sec u du = \ln \sec u + \tan u + C$
5.- $\int \sin u du = -\cos u + c$	15.- $\int \frac{du}{a^2 + u^2} = \frac{1}{a} \tan^{-1} \left(\frac{u}{a} \right) + c$	25) $\int \csc u du = \ln \csc u - \cot u + C$
6.- $\int \cos u du = \sin u + c$	16.- $\int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln \left \frac{u+a}{u-a} \right + c$	26) $\int \frac{du}{\sqrt{a^2 - u^2}} = \sin^{-1} \left(\frac{u}{a} \right) + C$
7.- $\int \tan u du = \ln \sec u + c$	17.- $\int \frac{du}{u^2 + a^2} = \frac{1}{2a} \ln \left \frac{u-a}{u+a} \right + c$	27) $\int \frac{du}{a^2 + u^2} = \tan^{-1} \left(\frac{u}{a} \right) + C$
8.- $\int \cot u du = \ln \sin u + c$	18.- $\int \frac{du}{\sqrt{a^2 - u^2}} = \sin^{-1} \left(\frac{u}{a} \right) + c$	28) $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \sec^{-1} \left(\frac{u}{a} \right) + C$
9.- $\int \sec u du = \ln \sec u + \tan u + c$	19.- $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \sec^{-1} \left(\frac{u}{a} \right) + c$	29) $\int \frac{du}{a^2 - u^2} = \frac{1}{2a} \ln \left \frac{u+a}{u-a} \right + C$
10.- $\int \csc u du = \ln \csc u - \cot u + c$	20.- $\int a^u du = \frac{a^u}{\ln a} + c$	30) $\int \frac{du}{u^2 - a^2} = \frac{1}{2a} \ln \left \frac{u-a}{u+a} \right + C$

Sustitucion trigonometrica

$\sqrt{a^2 - x^2}$	$\sqrt{a^2 + x^2}$	$\sqrt{x^2 - a^2}$
$x = a \sin \theta$	$x = a \tan \theta$	$x = a \sec \theta$
$dx = a \cos \theta d\theta$	$dx = a \sec^2 \theta d\theta$	$dx = a \sec \theta \tan \theta d\theta$
$\sqrt{a^2 - x^2} = a \cos \theta$	$\sqrt{a^2 + x^2} = a \sec \theta$	$\sqrt{x^2 - a^2} = a \tan \theta$
		