# MATEMATICAS

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# Deriva las siguientes funciones

a) $f(x)=3x^4+7x^2$

$f'(x)=12x^3+14x$

b) $f(x)=2x^7+3x^3$

$f'(x)=14x^6+9x^2$

c) $f(x)=(2^a+3^5x)^2$

$f(x)=4+12x+9x^2$

$f'(x)=12+18x$

d) $f(x)=(x^2-6)^3$

$3(x^2-6)^2\,2x$

$6x(x^2-6)^2$

$v(x^2-6)$

$n=3$

$v'=2x$

$\frac{d}{dx}vn=nv^{n+}\frac{dv}{dx}$

e) $f(x)=(5x^2+x)^3$

$3(5x^2+x)^2(10x+1)$

$f'(x)=6(5x^2+x)(10x+1)$

$v=5x^2+3$

$n=3$

$v'=10x+1$

# Integrar las funciones

a) $f(x)=8x^2+5x-11$

$8x^2+5x-11=0$

$x=\frac{-5\pm\sqrt{5^2-4\times8(-11)}}{2\times7}$

$x=5\pm\frac{\sqrt{25-4\times8(-11)}}{2\times7}$

$x=-5\pm\frac{\sqrt{372}}{2\times6}$

$x=-5\pm\frac{\sqrt{377}}{16}$

$x=\frac{\sqrt{372}-5}{16}$

$8x^2+5x-11$

b) $f(x)=10x^4-12x^3+6x^2+4x$

$f(x)+10x^4-12x^3+6x^2+4x$

$x(f+10x^3-12x+6+4)$

c) $f(x)=(x+5)^2$

$f(x)=(x+5)^2$

$x^2+10x+25$

d) $f(x)(2x+10)^3$

$(2x)^3+3x(2x)^2\times10+3x2x+10^3+10^3$

$8x^3+3x4x^2\times10+3x2x+100+1000$

$8x^3+120x^2+600x+1000$

e) $f(x)=2x(x^2+2)^2$

$2x((1x^2)+4x^2+4)$

$2x(x^4+4x^2+4)$

$2x^5+8x^3+8x$