Afleiður nokkurra falla

$f(x)=x^n$	$f'(x)=nx^{n-1}$
$f(x)=\sqrt{x}$	$f'(x)=\frac{1}{2\sqrt{x}}$
$f(x)=\sin(x)$	$f'(x)=\cos(x)$
$f(x)=\cos(x)$	$f'(x)=-\sin(x)$
$f(x)=\tan(x)$	$f'(x)=\frac{1}{\cos^2(x)}$
$f(x)=\tan(x)$	$f'(x)=1+\tan^2(x)$
$f(x)=\cot(x)$	$f'(x)=-(1+\cot^2(x))$
$f(x)=\ln(x)$	$f'(x)=\frac{1}{x}$
$f(x)=\log_a(x)$	$f'(x)=\frac{1}{x\cdot\ln(a)}$
$f(x)=e^x$	$f'(x)=e^x$
$f(x)=a^x$	$f'(x)=a^x\ln(a)$
$f(x)=\arcsin(x)$	$f'(x)=\frac{1}{\sqrt{1-x^2}}$
$f(x)=\arctan(x)$	$f'(x)=\frac{1}{1+x^2}$

Diffrunarreglur

$y=k\cdot f(x)$	$y'=k\cdot f'(x)$
$y=f(x)+g(x)$	$y'=f'(x)+g'(x)$
$y=f(x)\cdot g(x)$	$y'=f'(x)\cdot g(x)+f(x)\cdot g'(x)$
$y=\frac{f(x)}{g(x)}$	$y'=\frac{f'(x)g(x)-f(x)g'(x)}{g^2(x)}$
$y=f(g(x))$	$y'=f'(g(x))\cdot g'(x)$
$f(x)=\cot(x)$	$f'(x)=\frac{-1}{\sin^2(x)}$

Reglur um diffur

$d(f\cdot g)=df\cdot g+f\cdot dg$	$d\left(\frac{f}{g}\right)=\frac{df\cdot g-f\cdot dg}{g^2}$
$d(f\pm g)=df\pm dg$	$d(f(g(x)))=f'(g(x))\cdot dg(x)$

Línuleg nálgun

$$l(x)=f(x_0)+f'(x_0)(x-x_0)$$

Stofnföll nokkurra falla

$\int x^n dx=\frac{x^{n+1}}{n+1}+K$	$\int \sin(x)dx=-\cos(x)+K$	$\int \cos(x)dx=\sin(x)+K$
$\int (1+\tan^2(x))dx=\tan(x)+K$	$\int (1+\cot^2(x))dx=-\cot(x)+K$	$\int \frac{1}{a^2+b^2x^2}dx=\frac{1}{ab}\arctan\left(\frac{bx}{a}\right)+K$
$\int \tan^2(x)dx=\tan(x)-x+K$	$\int \cot^2(x)dx=-\cot(x)-x+K$	$\int \frac{1}{\sqrt{a^2-b^2x^2}}dx=\frac{1}{b}\arcsin\left(\frac{bx}{a}\right)+K$
$\int e^x dx=e^x+K$	$\int a^x dx=\frac{a^x}{\ln(a)}+K$	$\int \frac{1}{x}dx=\ln\lvert x\rvert+K$

Heildunarreglur

$\int f(x)dx=F(x)+K,\quad F'(x)=f(x)$	$\int_a^b f(x)dx=[F(x)]_a^b=F(b)-F(a)$
$\int k\cdot f(x)dx=k\int f(x)dx$	$\int_a^b k\cdot f(x)dx=k\int_a^b f(x)dx$
$\int (-f(x))dx=-\int f(x)dx$	$\int_a^a f(x)dx=0$
$\int (f(x)+g(x))dx=\int f(x)dx+\int g(x)dx$	$\int_a^b f(x)dx=-\int_b^a f(x)dx$
$\int_a^b f(x)dx=f(c)(b-a)$	$\int_a^b f(x)dx=\int_a^c f(x)dx+\int_c^b f(x)dx$

Flatarmál – Rúmmál

$A=\int_a^b f(x)dx=[F(x)]_a^b$	$A=\int_a^b (f(x)-g(x))dx=\int_a^b (EF-NF)dx$
$V=\int_a^b \pi(f(x))^2 dx=\int_a^b \pi\cdot R^2 dx$	$V=\int_a^b \pi((f(x))^2-(g(x))^2)dx=\int_a^b \pi\cdot(R^2-r^2)dx$

Heildunaraðferðir

$\int f(g(x))\cdot g'(x)dx=\int f(t)dt=F(t)+K=F(g(x))+K$

$t=g(x)\quad og\quad dt=g'(x)dx$

$\int f\cdot dg=fg-\int g\cdot df$

$\int_a^b f(g(x))\cdot g'(x)dx=\int_{g(a)}^{g(b)} f(t)dt=[F(t)]_{g(a)}^{g(b)}$

$t=g(x)\qquad x=b,\quad t=g(b)$

$dt=g'(x)dx\qquad x=a,\quad t=g(a)$

$Ax^2+Bx+C=0$

$D=B^2-4AC$

$x=\frac{-B\pm\sqrt{D}}{2A}$

Diffurjöfnur

$\frac{dy}{dx}=f(x)$ $y=F(x)+K$	$\frac{dy}{dx}=f(x)\cdot g(y)\Rightarrow$ $\int \frac{1}{g(y)}dy=\int f(x)dx$	$y'+f(x)y=g(x)$ $y=e^{-F(x)}\int g(x)e^{F(x)}dx$

Reiknireglur logra

$\ln(ab)=\ln(a)+\ln(b$	$\ln(\frac{a}{b})=\ln(a)-\ln(b)$	$\ln(a^n)=n\ln(a)$	$\ln(1)=0$ $\ln(e)=1$	$\log_a(x)=\frac{\ln(x)}{\ln(a)}$

Andhverf hornaföll

$\sin(\arcsin(x))=x$	$\cos(\arccos(x))=x$	$\tan(\arctan(x))=x$	$\cot(\text{arccot}(x))=x$
$\arcsin(\sin(x))=x$	$\arccos(\cos(x))=x$	$\arctan(\tan(x))=x$	$\text{arccot}(\cot(x))=x$
$\arcsin(-x)=-\arcsin(x)$	$\arccos(-x)=\pi-\arccos(x)$	$\arctan(-x)=-\arctan(x)$	$\text{arc}\cot(-x)=-\text{arc}\cot(x)$
$\arcsin(x)+\arccos(x)=\frac{\pi}{2}$	$\arctan(x)+\text{arc}\cot(x)=\frac{\pi}{2}$		

	$y=\arcsin(x)$	$y=\arccos(x)$	$y=\arctan(x)$	$y=\text{arccot}(x)$
Skilgr.mengi	$-1\le x\le 1$	$-1\le x\le 1$	$\infty<x<\infty$	$\infty<x<\infty$
Myndmengi	$-\frac{\pi}{2}\le y\le\frac{\pi}{2}$	$0\le y\le\pi$	$-\frac{\pi}{2}\le y\le\frac{\pi}{2}$	$0<y<\pi$

Summur - Runur - Raðir

$\sum_{i=k}^{n} a_i=a_k+a_{k+1}+\ldots+a_n$

Runa $\{a_i\}=a_1,\ a_2,\ a_3,\ \ldots,\ a_i,\ \ldots$

Röð $\sum_{i=1}^{\infty} a_i=a_1+a_2+a_3+\ldots$

$s_I=\sum_{i=1}^{n} k_i\cdot\Delta x_i$	$S_I=\sum_{i=1}^{n} K_i\cdot\Delta x_i$	$\sigma_I=\sum_{i=1}^{n} f(t_i)\cdot\Delta x_i$

Mismunaruna $\{a_i\}$

$a_{i+1}=a_i+d$	$a_i=a_1+(i-1)d$	$s_n=n\cdot\frac{a_1+a_n}{2}$	$s_n=n\cdot\frac{2a_1+(n-1)d}{2}$

Kvótaruna $\{a_i\}$ $\quad a_{i+1}=a_i\cdot q\quad a_i=a_1\cdot q^{i-1}\quad s_n=a_1\cdot\frac{1-q^n}{1-q}$