	Category	Sub-category	Description	Key	Formula	Year	On formula sheet	Co
0	Indices	Index Rules	Multiplying terms with same base	nan	$a^m \times a^n = a^{m+n}$	9	False	na
1	Indices	Index Rules	Dividing terms with same base	nan	$a^m \div a^n = \frac{a^m}{a^n} = a^{m-n}$	9	False	na
2	Indices	Index Rules	Power of a power	nan	$(a^m)^n = a^{m \times n}$	9	False	na
3	Indices	Index Rules	Powers of products	nan	$(ab)^n = a^n b^n$	9	False	na
4	Indices	Index Rules	Powers of quotients	nan	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$	9	False	na
5	Indices	Index Rules	Power of zero	nan	$a^0 = 1$	9	False	na
6	Indices	Index Rules	Negative powers	nan	$a^{-n} = \frac{1}{a^n}$	9	False	na
7	Indices	Index Rules	Negative powers of quotients	nan	$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$	9	False	na
8	Indices	Index Rules	Fractional powers	nan	$a^{\frac{m}{n}} = \sqrt[n]{a^m}$	9	False	na
9	Differentiation	nan	nan	$y = f(x)^n$	$\frac{dy}{dx} = nf'(x)[f(x)]^{n-1}$	12	True	na
10	Integration	nan	nan	$y = f(x)^n$	$\int f'(x)[f(x)]^n dx = \frac{1}{n+1}[f(x)]^{n+1} + c$ where $n \neq 1$	12	True	Wh ha wh
11	Differentiation	nan	nan	$y = sinf(x)$	$\frac{dy}{dx} = f'(x)cosf(x)$	12	True	na
12	Integration	nan	nan	$y = sinf(x)$	$\int f'(x)cosf(x)dx = sinf(x) + c$	12	True	na
13	Differentiation	nan	nan	$y = cosf(x)$	$\frac{dy}{dx} = -f'(x)sinf(x)$	12	True	na

	Category	Sub-category	Description	Key	Formula	Year	On formula sheet	Co
14	Integration	nan	nan	$y = cosf(x)$	$\int f'(x)sinf(x)dx = -cosf(x) + c$	12	True	na
15	Differentiation	nan	nan	$y = tanf(x)$	$\frac{dy}{dx} = f'(x)sec^2f(x)$	12	True	na
16	Integration	nan	nan	$y = tanf(x)$	$\int f'(x)sec^2f(x)dx = tanf(x) + c$	12	True	na
17	Differentiation	nan	nan	$y = e^{f(x)}$	$\frac{dy}{dx} = f'(x)e^{f(x)}$	12	True	na
18	Integration	nan	nan	$y = e^{f(x)}$	$\int f'(x)e^{f(x)}dx = e^{f(x)} + c$	12	True	na
19	Differentiation	nan	nan	$y = lnf(x)$	$\frac{dy}{dx} = \frac{f'(x)}{f(x)}$	12	True	na
20	Integration	nan	nan	$y = lnf(x)$	$\int \frac{f'(x)}{f(x)}dx = ln\|f(x)\| + c$	12	True	Wh va
21	Differentiation	nan	nan	$y = a^{f(x)}$	$\frac{dy}{dx} = (ln\, a)f'(x)a^{f(x)}$	12	True	na
22	Integration	nan	nan	$y = a^{f(x)}$	$\int f'(x)a^{f(x)}dx = \frac{a^f(x)}{ln\, a} + c$	12	True	In co the be fro int go oth the eq wh co the eq

	Category	Sub-category	Description	Key	Formula	Year	On formula sheet	Co
23	Differentiation	nan	nan	$y = log_a f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{(ln\, a) f(x)}$	12	True	Th is ne for as fur ea rev ln wh is the de rul y $=$ $\times$ ca fol eq int pro for bu ea de
24	Differentiation	nan	nan	$y = uv$	$\frac{dy}{dx} = u\frac{dv}{dx} + v\frac{du}{dx}$	12	True	na
25	Integration	nan	nan	$y = uv$	$\int u\frac{dv}{dx}dx = uv - \int v\frac{du}{dx}dx$	12	nan	na
26	Differentiation	nan	nan	$y = \frac{u}{v}$	$\frac{dy}{dx} = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$	12	True	na
27	Differentiation	nan	nan	$y = g(u)$ where $u = f(x)$	$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$	12	True	na
28	Differentiation	nan	nan	$y = sin^{-1} f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{\sqrt{1 - (f(x))^2}}$	12	True	na

	Category	Sub-category	Description	Key	Formula	Year	On formula sheet	Co
29	Integration	nan	nan	$y = sin^{-1}f(x)$	$\int \frac{f'(x)}{\sqrt{a^2-(f(x))^2}}dx = sin^{-1}\frac{f(x)}{a} + c$	12	True	na
30	Differentiation	nan	nan	$y = cos^{-1}f(x)$	$\frac{dy}{dx} = -\frac{f'(x)}{\sqrt{1-(f(x))^2}}$	12	True	No mi of WI int eq
31	Differentiation	nan	nan	$y = tan^{-1}f(x)$	$\frac{dy}{dx} = -\frac{f'(x)}{1+(f(x))^2}$	12	No square root as per inverse sin and inverse cos derivatives and plus sign	na
32	Integration	nan	nan	$y = tan^{-1}f(x)$	$\int \frac{f'(x)}{a^2+(f(x))^2}dx = \frac{1}{a}tan^{-1}\frac{f(x)}{a} + c$	12	True	No roo inv an co de an
33	Integration	nan	nan	$approx$	" $\int_a^b f(x)dx \approx \frac{b-a}{2n}\{f(a) + f(b) + 2[f(x_1)+ \ldots + f(x_{n-1})]\}$ where $a = x_0$ and $b = x_n$ "	12	True	na

$log_a f(x)$

$\int f'(x) sin f(x) dx = -cos f(x) + c$

	Function to differentiate	Derivative	Equivalent integral	Comment
0	$approx$		" $\int_a^b f(x)dx \approx \frac{b-a}{2n}\{f(a) + f(b) + 2[f(x_1)+\ldots +f(x_{n-1})]\}$ where $a = x_0$ and $b = x_n$ "	
1	$y = \frac{u}{v}$	$\frac{dy}{dx} = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$		
2	$y = a^{f(x)}$	$\frac{dy}{dx} = (ln\, a)f'(x)a^{f(x)}$	$\int f'(x)a^{f(x)}dx = \frac{a^f(x)}{ln\, a} + c$	ln a is a constant therefore can be removed from the integral it can go on the other side of the intergral equation when compared to the derivative equation.
3	$y = cos^{-1}f(x)$	$\frac{dy}{dx} = -\frac{f'(x)}{\sqrt{1-(f(x))^2}}$		Note the minus in front of fraction. Why no integral equivalent?
4	$y = cosf(x)$	$\frac{dy}{dx} = -f'(x)sinf(x)$	$\int f'(x)sinf(x)dx = -cosf(x) + c$	
5	$y = e^{f(x)}$	$\frac{dy}{dx} = f'(x)e^{f(x)}$	$\int f'(x)e^{f(x)}dx = e^{f(x)} + c$	
6	$y = f(x)^n$	$\frac{dy}{dx} = nf'(x)[f(x)]^{n-1}$	$\int f'(x)[f(x)]^n dx = \frac{1}{n+1}[f(x)]^{n+1} + c$ where $n \neq 1$	What happens when n is -1?
7	$y = g(u)$ where $u = f(x)$	$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$		
8	$y = lnf(x)$	$\frac{dy}{dx} = \frac{f'(x)}{f(x)}$	$\int \frac{f'(x)}{f(x)}dx = ln\lvert f(x)\rvert + c$	Why absolute value?

	Function to differentiate	Derivative	Equivalent integral	Comment
9	$y = log_a f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{(ln\, a) f(x)}$		This formula is not really needed on formula sheet as original function can easily be rewritten as $\frac{ln\, f(x)}{ln\, a}$ where $\frac{1}{ln\, a}$ is a constant therefore the derivative rules for $y = \text{constant} \times ln\, f(x)$ can be followed. No equivalent integral is provided on formula sheet but can be easily derived.
10	$y = sin^{-1} f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{\sqrt{1-(f(x))^2}}$	$\int \frac{f'(x)}{\sqrt{a^2-(f(x))^2}} dx = sin^{-1} \frac{f(x)}{a} + c$	
11	$y = sin f(x)$	$\frac{dy}{dx} = f'(x) cos f(x)$	$\int f'(x) cos f(x) dx = sin f(x) + c$	
12	$y = tan f(x)$	$\frac{dy}{dx} = f'(x) sec^2 f(x)$	$\int f'(x) sec^2 f(x) dx = tan f(x) + c$	
13	$y = tan^{-1} f(x)$	$\frac{dy}{dx} = -\frac{f'(x)}{1+(f(x))^2}$	$\int \frac{f'(x)}{a^2+(f(x))^2} dx = \frac{1}{a} tan^{-1} \frac{f(x)}{a} + c$	No square root as per inverse sin and inverse cos derivatives and plus sign
14	$y = uv$	$\frac{dy}{dx} = u\frac{dv}{dx} + v\frac{du}{dx}$	$\int u \frac{dv}{dx} dx = uv - \int v \frac{du}{dx} dx$	