Function	Derivative	Equivalent integral	Comment
$y = f(x)^n$	$\frac{dy}{dx} = nf'(x)[f(x)]^{n-1}$	$\int f'(x)[f(x)]^n dx = \frac{1}{n+1}[f(x)]^{n+1} + c$ where $n \neq -1$	When n = -1 follow the integration rules for $\int \frac{f'(x)}{f(x)}dx$
$y = uv$	$\frac{dy}{dx} = u\frac{dv}{dx} + v\frac{du}{dx}$	$\int u\frac{dv}{dx}dx = uv - \int v\frac{du}{dx}dx$	
$y = \frac{u}{v}$	$\frac{dy}{dx} = \frac{v\frac{du}{dx} - u\frac{dv}{dx}}{v^2}$		
$y = g(u)$ where $u = f(x)$	$\frac{dy}{dx} = \frac{dy}{du} \times \frac{du}{dx}$		
		$\int_a^b f(x)dx \approx \frac{b-a}{2n}\left\{f(a) + f(b) + 2\left[f(x_1)+\ldots+f(x_{n-1})\right]\right\}$ where $a = x_0$ and $b = x_n$	
$y = sinf(x)$	$\frac{dy}{dx} = f'(x)cosf(x)$	$\int f'(x)cosf(x)dx = sinf(x) + c$	
$y = cosf(x)$	$\frac{dy}{dx} = -f'(x)sinf(x)$	$\int f'(x)sinf(x)dx = -cosf(x) + c$	
$y = tanf(x)$	$\frac{dy}{dx} = f'(x)sec^2f(x)$	$\int f'(x)sec^2f(x)dx = tanf(x) + c$	
$y = e^{f(x)}$	$\frac{dy}{dx} = f'(x)e^{f(x)}$	$\int f'(x)e^{f(x)}dx = e^{f(x)} + c$	
$y = lnf(x)$	$\frac{dy}{dx} = \frac{f'(x)}{f(x)}$	$\int \frac{f'(x)}{f(x)}dx = ln\|f(x)\| + c$	Why absolute value?
$y = a^{f(x)}$	$\frac{dy}{dx} = (ln\,a)f'(x)a^{f(x)}$	$\int f'(x)a^{f(x)}dx = \frac{a^f(x)}{ln\,a} + c$	In 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.
$y = log_a f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{(ln\,a)f(x)}$		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

Function	Derivative	Equivalent integral	Comment
			integral is provided on formula sheet but can be easily derived.
$y = sin^{-1} f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{\sqrt{1-(f(x))^2}}$	$\int \frac{f'(x)}{\sqrt{a^2-(f(x))^2}} dx = sin^{-1} \frac{f(x)}{a} + c$	Note slighlty different format compared to derivative on formula sheet ("a" rather than a 1)
$y = cos^{-1} f(x)$	$\frac{dy}{dx} = -\frac{f'(x)}{\sqrt{1-(f(x))^2}}$		Note the minus in front of fraction. Why no integral equivalent?
$y = tan^{-1} f(x)$	$\frac{dy}{dx} = \frac{f'(x)}{1+(f(x))^2}$	$\int \frac{f'(x)}{a^2+(f(x))^2} dx = \frac{1}{a} tan^{-1} \frac{f(x)}{a} + c$	No square root as per inverse sin and inverse cos derivatives and plus signNote slighlty different format compared to derivative on formula sheet ("a" rather than a 1)