$\frac{\mathrm{d}}{\mathrm{d}x}f(x)$	$\longleftrightarrow$	$f(x)$	$\longleftrightarrow$	$\int f(x)\,\mathrm{d}x$
a		ax		$\frac{a}{2}x^2$
nx^{n-1}		x^n		$\frac{1}{n+1}x^{n+1}$
$a \cdot e^{ax}$		e^{ax}		$\frac{1}{a}e^{ax}$
$a^x \ln(a)$		a^x		$\frac{a^x}{\ln(a)}$
$\frac{1}{x}$		$\ln\lvert x\rvert$		$x\ln\lvert x\rvert - x$
$\frac{1}{x\ln(a)}$		$\log_a(x)$		$\log_a(x) - \frac{x}{\ln(a)}$
$\cos(x)$		$\sin(x)$		$-\cos(x)$
$-\sin(x)$		$\cos(x)$		$\sin(x)$
$\sec^2(x)$		$\tan(x)$		$-\ln\left\lvert\cos(x)\right\rvert = \ln\left\lvert\sec x\right\rvert$
$-\csc(x)\cot(x)$		$\csc(x)$		$\ln\left\lvert\csc(x) - \cot(x)\right\rvert$
$\sec(x)\tan(x)$		$\sec(x)$		$\ln\left\lvert\sec(x) + \tan(x)\right\rvert$
$-\csc^2(x)$		$\cot(x)$		$\ln\left\lvert\sin(x)\right\rvert = -\ln\left\lvert\csc(x)\right\rvert$
$\frac{1}{\sqrt{a^2-x^2}}$		$\sin^{-1}\left(x/a\right)$		$x\sin^{-1}(x/a) + \sqrt{a^2-x^2}$
$-\frac{1}{\sqrt{a^2-x^2}}$		$\cos^{-1}\left(x/a\right)$		$x\cos^{-1}(x/a) - \sqrt{a^2-x^2}$
$\frac{1}{a^2+x^2}$		$\tan^{-1}\left(x/a\right)$		$x\tan^{-1}(x/a) - a\frac{1}{2}\ln\left\lvert x^2+a^2\right\rvert$
$-\frac{a}{\lvert x\rvert\sqrt{x^2-a^2}}$		$\csc^{-1}\left(x/a\right)$		$x\csc^{-1}(x/a) + a\ln\left\lvert\frac{x+\sqrt{x^2-a^2}}{a}\right\rvert$
$\frac{a}{\lvert x\rvert\sqrt{x^2-a^2}}$		$\sec^{-1}\left(x/a\right)$		$x\sec^{-1}(x/a) - a\ln\left\lvert\frac{x+\sqrt{x^2-a^2}}{a}\right\rvert$
$-\frac{a}{x^2+a^2}$		$\cot^{-1}\left(x/a\right)$		$x\cot^{-1}(x/a) + a\frac{1}{2}\ln\left\lvert a^2+x^2\right\rvert$

$$\ln x \ll x^p \ll b^x \ll x! \ll x^x$$

Series	$\sum_{k=0}^{\infty} a_k$	Converges	Diverges
Geometric	$\sum_{k=0}^{\infty} ar^k$	$\sum a_k \to \frac{a}{1-r} \Rightarrow \lvert r\rvert < 1$	$\lvert r\rvert \not< 1$
Telescoping	$\sum_{k=0}^{\infty} \Big(a_k - a_{k+1}\Big)$	$\sum a_k \to a_1 - \lim_{k\to\infty} a_k$	$\times$
p-series	$\sum_{k=0}^{\infty} \frac{1}{k^p}$	$p > 1$	$p \not> 1$
Harmonic	$\sum_{k=0}^{\infty} \frac{1}{k}$	$\times$	✓
Divergence Test	$\sum_{k=0}^{\infty} a_k$	$\lim_{k\to\infty} \lvert a_k\rvert = 0 \to$ inconclusive	$\lim_{k\to\infty} \lvert a_k\rvert \neq 0$
Integral Test	☐ Task 1		