

Chapter 17

Advanced Integration I



Table 17-1:
Standard
integrals for a
linear expression
of the form ax
 $+ b$

y	$\int y dx$	y	$\int y dx$
$\frac{1}{ax+b}$	$\frac{1}{a} \ln ax+b + C$	$\frac{1}{ax}$	$\frac{1}{a} \ln ax + C$
e^{ax+b}	$\frac{1}{a} e^{ax+b} + C$	e^{ax}	$\frac{1}{a} e^{ax} + C$
z^{ax+b}	$\frac{z^{ax+b}}{a \ln z} + C$	z^{ax}	$\frac{z^{ax}}{a \ln z} + C$
$\ln(ax+b)$	$\left(x + \frac{b}{a}\right) \ln(ax+b) - x + C$	$\ln(ax)$	$x \ln(ax) - x + C$
$\sin(ax+b)$	$-\frac{1}{a} \cos(ax+b) + C$	$\sin(ax)$	$-\frac{1}{a} \cos(ax) + C$
$\cos(ax+b)$	$\frac{1}{a} \sin(ax+b) + C$	$\cos(ax)$	$\frac{1}{a} \sin(ax) + C$
$\tan(ax+b)$	$\frac{1}{a} \ln \sec(ax+b) + C$	$\tan(ax)$	$\frac{1}{a} \ln \sec(ax) + C$
$\sec(ax+b)$	$\frac{1}{a} \ln \tan(ax+b) + \sec(ax+b) + C$	$\sec(ax)$	$\frac{1}{a} \ln \tan(ax) + \sec(ax) + C$
$\operatorname{cosec}(ax+b)$	$-\frac{1}{a} \ln \cot(ax+b) + \operatorname{cosec}(ax+b) + C$	$\operatorname{cosec}(ax)$	$-\frac{1}{a} \ln \cot(ax) + \operatorname{cosec}(ax) + C$
$\cot(ax+b)$	$\frac{1}{a} \ln \sin(ax+b) + C$	$\cot(ax)$	$\frac{1}{a} \ln \sin(ax) + C$
$\sec^2(ax+b)$	$\frac{1}{a} \tan(ax+b) + C$	$\sec^2(ax)$	$\frac{1}{a} \tan(ax) + C$
$\operatorname{cosec}^2(ax+b)$	$-\frac{1}{a} \cot(ax+b) + C$	$\operatorname{cosec}^2(ax)$	$-\frac{1}{a} \cot(ax) + C$



Thank You

