Shortcut Integral Formulas

Rule (where k is a constant)	Example
$\int e^{kx}dx = \frac{e^{kx}}{k} + C$	$\int e^{2x}dx = \frac{e^{2x}}{2} + C$
$\int sin(kx)dx = \frac{-cos(kx)}{k} + C$	$\int sin(3x)dx = \frac{-cos(3x)}{3} + C$
$\int cos(kx)dx = \frac{sin(kx)}{k} + C$	$\int cos(5x)dx = \frac{sin(5x)}{5} + C$
$\int sec^2(kx)dx = \frac{tan(kx)}{k} + C$	$\int sec^2(4x)dx = \frac{tan(4x)}{4} + C$
$\int csc^2(2x)dx = \frac{-cot(kx)}{k} + C$	$\int csc^2(2x)dx = \frac{-cot(2x)}{2} + C$
$\int (k_1x + k_2)^n dx = \frac{1}{k_1}\frac{(k_1x + k_2)^{n+1}}{n+1} + C$	$\int (2x+3)^7 dx = \frac{1}{2}\frac{(2x+3)^8}{8} + C$ $= \frac{(2x+3)^8}{16} + C$
$\int \frac{u'}{u} = ln\|u\| + C$	$\int \frac{x+1}{x^2+2x+1}dx = \frac{1}{2}\int \frac{2(x+1)}{x^2+2x+1}dx$ $= \frac{1}{2}ln\|x^2+2x+1\| + C$