Table of Indefinite Integrals

$\int cf(x)\,dx = c\int f(x)\,dx$	$\int [f(x)+g(x)]\,dx = \int f(x)\,dx + \int g(x)\,dx$
$\int k\,dx = kx + C$	
$\int x^n\,dx = \frac{x^{n+1}}{n+1} + C\ (n \neq -1)$	$\int \frac{1}{x}\,dx = \ln\lvert x\rvert + C$
$\int e^x\,dx = e^x + C$	$\int b^x\,dx = \frac{b^x}{\ln b} + C$
$\int \sin x\,dx = -\cos x + C$	$\int \cos x\,dx = \sin x + C$
$\int \sec^2 x\,dx = \tan x + C$	$\int \csc^2 x\,dx = -\cot x + C$
$\int \sec x \tan x\,dx = \sec x + C$	$\int \csc x \cot x\,dx = -\csc x + C$
$\int \frac{1}{x^2+1}\,dx = \tan^{-1} x + C$	$\int \frac{1}{\sqrt{1-x^2}}\,dx = \sin^{-1} x + C$

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1. For the following integrals, decide if you would use a u-substitution. If so, *just write down the u-substitution*. If not, *evaluate the integral*.

(a) $\displaystyle\int e^{\cos x}\sin x\,dx =$

(b) $\displaystyle\int \frac{dx}{ax+b} =$

(c) $\displaystyle\int_0^2 |2x-1|\,dx =$

(d) $\displaystyle\int_e^{e^4} \frac{dx}{x\sqrt{\ln x}} =$

(e) $\displaystyle\int (7x - 7^{-x})\,dx =$

(f) $\displaystyle\int_0^1 x(\sqrt[3]{x} + \sqrt[4]{x})\,dx =$

(g) $\displaystyle\int \pi\,dt =$

(h) $\displaystyle\int \frac{3\,dr}{\sqrt{1-r^2}} =$

(i) $\displaystyle\int \tan^2\theta\sec^2\theta\,d\theta =$

(j) $\displaystyle\int \frac{dx}{(1+x^2)\tan^{-1}(x)} =$

2. Complete the u-substitution, or any other work, for the integrals from problem **1.**

(a)

(b)

(c)

(d)

(e)

(f)

(g)

(h)

(i)

(j)